Test Specifications Fuel Injection Pumps (1A) and Governors

WPP 001/4 CAS 8,3 b
1. Edition

En

PES 6 A 95 D 420 LS 2551 RSV 375-1050A2B2033R

supersedes
company Case
engine A-504 BD

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke 2,2-2,3 (2,15-2,35) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm (2) 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1050	12,2+0,1	9,6-9,8	0,3 (0,6)			
375	8,2-8,3	1,6-2,2	0,3 (0,6			

Adjust the fuel delivery from each outlet according to the values in ☐

B. Governor Settings

(1) Upper rated speed rev/min: Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	Intermediate rated speed 4	5	6	(4) Lower rated speed: Control-lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	(3) Torque control: rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	ca.28	375	7,6	1050	12,2-12,3
	X =						150	min.19,0	425	12,9-13,5
ca,51 (2a)	11,2	1090-1100					375	8,0-8,2		
	4,0	1215-1245					530-570	= 3,0		
	1300	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2b) Full-load stop, Test oil temp 40°C (104°F): rev/min 1	cm³/1000 strokes 2	(6) Rotational-speed limitat, Note changed to) rev/min 3	(3a) Fuel delivery characteristics: rev/min 4	cm³/1000 strokes 5	Starting fuel delivery idle: rev/min 6	(5) cm³/1000 strokes 7	(4a) Idle stop: rev/min 8	Control rod travel mm 9
1050	96,0-98,0 (93,0-101,0)	1090-1100*	800	95,0-99,0 (92,0-102,0)	100	130,0-150,0	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

12.82

BOSCH Geschäftsbereich KH Kundendienst Kfz-Ausrüstung

A1

Test Specifications Fuel Injection Pumps and Governors ①

WPP 001/4 GUS 31,8 a
2. Edition
En

Testoil-ISO 4113

PE 12 P 130 A 120 RS 3094 RQV 350-900 PA 602

supersedes 82
company Guascor
engine: E 318

1 -12 - 9 - 4 - 5 - 8 -11 - 2 - 3 -10 - 7 - 6
0 -45 -60 -105-120-165-180-225-240-285-300-345° ± 0,5° (± 0,75°)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,8 - 2,9 (2,75-2,95) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
900	9,4-9,5	25,5 - 25,9	0,5(0,9)			
350	4,0-4,2	2,1 - 2,7	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in [ ].

B. Governor Settings

Upper rated speed: Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min (1a) (2a) 3	Intermediate rated speed: Degree of deflection of control lever 4	rev/min 5	Control rod travel mm (4) 6	Lower rated speed: Degree of deflection of control lever 7	rev/min 8	Control rod travel mm (3) 9	Sliding sleeve travel (1): rev/min 10	mm 11
max.	940	15,2-17,8	-	-	-	ca. 10	100	min.5,6	300	1,0-1,2
ca. 60	8,4	940-950					350	4,0-4,2	500	2,8-3,2
	4,0	970-1000					420-480 = 2,0 mm		700	4,7-5,1
	1100	0 - 1,0				(3a)			900	7,7

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) (2): rev/min 1	cm³/1000 strokes 2	Rotational-speed limitation intermediate speed (2b) (4a): rev/min 3	Fuel delivery characteristics high idle speed (5a) (5b): rev/min 4	cm³/1000 strokes 5	Starting fuel delivery Idle switching point (6): rev/min 6	cm³/1000 strokes 7	Torque-control travel (5): rev/min 8	Control rod travel mm 9
900	255,0-259,0 (252,0-262,0)	940-950 *	-	-	100	19,5 - 21,0 mm RW	-	

Checking values in brackets

* 1 mm less control rod travel than col. 2

11.82

BOSCH Geschäftsbereich KH. Kundendienst. Kfz-Ausrüstung
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A2

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 SCA 8,0 e
5. Edition
En

Testoil-ISO 4113

PE 6 P 110 A 720 RS 393 RQV 200-1200 PA 467 R.

superseds 3.82
company Scania
engine: D8

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 3,0 - 3,1 (2,95 - 3,15) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1200	12,0+0,1	9,5 - 9,7	0,4(0,8)			2,5±0,1 (max.2,2 - 2,9)
225	7,0-7,2	0,8 - 1,2	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in [ ].

B. Governor Settings

Upper rated speed: Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min (1a) (2a) 3	Intermediate rated speed: Degree of deflection of control lever 4	rev/min 5	Control rod travel mm (4) 6	Lower rated speed: Degree of deflection of control lever 7	rev/min 8	Control rod travel mm (3) 9	Sliding sleeve travel (1): rev/min 10	mm 11
max.	1200 1500	15,2-17,8 0 - 1	-	-	-	ca. 14	100 225	min.8,8 7,0-7,2	200 550 850 1200	1,0-1,2 4,2-4,8 5,8-6,0 8,1
ca. 61	11,0 4,0	1240-1250 1375-1405				260-360 (3a)				

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) (2): rev/min 1	cm³/1000 strokes 2	Rotational-speed limitation (2b) intermediate speed (4a): rev/min 3	Fuel delivery characteristics (5a) high idle speed (5b): rev/min 4	cm³/1000 strokes 5	Starting fuel delivery (6) idle switching point: rev/min 6	cm³/1000 strokes 7	Torque-control (5) travel: rev/min 8	Control rod travel mm 9
1200	95,0 - 97,0 (92,0 - 100,0)	1240-1250 *	600	88,5 - 91,5 (85,5 - 94,5)	100 225	170,0-210,0 20,0 - 21,0 mm RW 8,0-12,0	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

12.82

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Geschäftsbereich KH Kundendienst, Kfz-Ausrüstung.
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A3

A3

Test Specifications Fuel Injection Pumps and Governors (1A)

WPP 001/4 PEN 10,0 e 2

1. Edition

En

PE 6 P 110 A 320 RS 3109 RSV 200-900 P1/421

supersedes
company Volvo-Penta
TD 100 G
engine 203 kW (276 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke 3,5 - 3,6 (3,45-3,65) mm (from BDC) RW 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm (2) 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	12,6+0,1	16,6-16,8	0,4 (0,8)			
250	4,2-4,4	1,7-2,1	0,3 (0,6)			

Adjust the fuel delivery from each outlet according to the values in [ ]

B. Governor Settings

(1) Upper rated speed rev/min: Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	Intermediate rated speed 4	5	6	(4) Lower rated speed: Control-lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	(3) Torque control: rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	ca. 19	250	3,8	-	-
	x = 4,0						250	4,2-4,4		
ca.46 (2a)	11,6	940-950					270-330	=2,0		
	4,0	970-1000								
	1140	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2b) Full-load stop, Test oil temp. 40°C (104°F): rev/min 1	cm³/1000 strokes 2	(6) Rotational-speed limitat, Note changed to) rev/min 3	(3a) Fuel delivery characteristics: rev/min 4	cm³/1000 strokes 5	Starting fuel delivery (5) Idle: rev/min 6	cm³/1000 strokes 7	(4a) Idle stop: rev/min 8	Control rod travel mm 9
700	166,0-168,0 (163,0-171,0)	940-970*	-	-	100	20,0-21,0 mmRW	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

BOSCH Geschäftsbereich KH Kundendienst Kfz-Ausrüstung

A4

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 PEN 10,-

1. Edition

En

PE 6 P 110 A 320 RS 3109 RSV 200-750 P 4/421 R

supersedes -

company Volvo-Penta

engine TD 100 GG

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 3,5-3,6 (3,45-3,65) mm (from BDC) =RW 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm (2) 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	12,8+0,1	17,1-17,3	0,4 (0,8)			
250	4,1-4,3	1,7-2,1	0,3 (0,6)			

Adjust the fuel delivery from each outlet according to the values in [ ]

B. Governor Settings

(1) Upper rated speed rev/min: Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	Intermediate rated speed 4	5	6	(4) Lower rated speed: Control-lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	(3) Torque control: rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	ca. 21	250	3,7	-	-
	x =	3,5					100	min. 19,0		
ca. 43 (2a)	11,8	745-755					250	4,1-4,3		
	4,0	780-810					270-330	=2,0		
	940	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2b) Full-load stop, Test oil temp 40°C (104°F): rev/min 1	cm³/1000 strokes 2	(6) Rotational-speed limitat, Note changed to ( ) rev/min 3	(3a) Fuel delivery characteristics: rev/min 4	cm³/1000 strokes 5	Starting fuel delivery Idle: rev/min 6	cm³/1000 strokes 7	(4a) Idle stop: rev/min 8	Control rod travel mm 9
700	171,0-173,0 (168,0-176,0)	745-755	-	-	100	20,0-21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

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A5

A5

Test Specifications Fuel Injection Pumps and Governors

(1A)

WPP 001/4 PEN 10,0 e

1. Edition

En

PE 6 P 110 A 320 RS 3109 Z RSV 200-900 P 1/421

supersedes

company Volvo-Penta

engine TMD 100 B
177 kW (241 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke 3,5-3,6 (3,45-3,65) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm (2) 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	12,0+0,1	16,1-16,3	0,4 (0,8)			
250	4,2-4,4	1,7-2,1	0,3 (0,6)			

Adjust the fuel delivery from each outlet according to the values in ☐

B. Governor Settings

(1) Upper rated speed rev/min: Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	Intermediate rated speed 4	5	6	(4) Control-lever deflection in degrees 7	Lower rated speed: rev/min 8	Control rod travel mm 9	(3) Torque control: rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	ca. 19	250	3,7-3,9	-	-
	x =	4,0					250	4,2-4,4		
ca. 46 (2a)	11,0	940-950					270-330	=2,0		
	4,0	970-1000								
	1140	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2b) Full-load stop, Test oil temp 40°C (104°F): rev/min 1	cm³/1000 strokes 2	(6) Rotational-speed limitat, Note: changed to) rev/min 3	(3a) Fuel delivery characteristics: rev/min 4	cm³/1000 strokes 5	Starting fuel delivery (5) Idle: rev/min 6	cm³/1000 strokes 7	(4a) Idle stop: rev/min 8	Control rod travel mm 9
700	161,0-163,0 (158,0-166,0)	940-950	-	-	100	20,0-21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

BOSCH Geschäftsbereich KH Kundendienst Kfz-Ausrüstung

Test Specifications Fuel Injection Pumps and Governors

(1A)

40

WPP 001/4 VAL 3,3a
1. Edition

En

PES3A95D 320 RS 2655 RSV 325-1150 A 2 B 2178-1R

supersedes -
company Valmet
engine 311 DS 6

1 - 2 - 3 je 120 ° ± 0,5 ° (±0,75 °)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke 2,5-2,6 (2,45-2,65) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm (2) 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	10,0+0,1	8,3 - 8,5	0,3 (0,6)			
325	7,1-7,3	0,9 - 1,5	0,3 (0,5)			

Adjust the fuel delivery from each outlet according to the values in ☐

B. Governor Settings

(1) Upper rated speed rev/min: Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	Intermediate rated speed 4	5	6	(4) Lower rated speed: Control-lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	(3) Torque control: rev/min 10	Control rod travel mm 11
loose	800 0,3-1,0 X = 6,0		-	-	-	ca. 28	325	6,7	1150	10,0-10,1
							100	min.19,5	500	11,3-11,4
ca. 54 (2a)	9,0 1190-1200 4,0 1290-1320 1455 0,3 -1,7						325 650-710	7,1-7,3 = 2,0	915	10,6-10,8

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2b) Full-load stop, Test oil temp 40°C (104°F): rev/min 1	cm³/1000 strokes 2	(6) Rotational-speed limitat, Note changed to ..) rev/min 3	(3a) Fuel delivery characteristics: rev/min 4	cm³/1000 strokes 5	Starting fuel delivery (5) Idle: rev/min 6	cm³/1000 strokes 7	(4a) Idle stop: rev/min 8	Control rod travel mm 9
1150	82,5-84,5 (80,5-86,5)	1190-1200*	500	83,0-86,0 (81,0-88,0)	100	67,5-77,5 =12,0-12,6 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

11.82

BOSCH Geschäftsbereich KH Kundendienst Kfz-Ausrüstung.

A7

Test Specifications Fuel Injection Pumps and Governors

40

(1A) WPP 001/4 DAF 8,3i2
2. Edition

En

Testoil-ISO 4113

PE 6 A 90 D 410 RS 2524 RSV 250-900 A7B 2060 DL

superseded 8.80
company DAF
engine DH 825

Test the manifold-preeure compensator and cold-start according to Service Information. Specifications apply to test tubing 1 680 750 015.

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (2,25-2,45) 2,30-2,40 RW 9 mm (from BDC)

Port closing difference between control-rod travel 9 mm and max. = 4,5 - 5,5°.

Rotational speed rev/min 1	Control rod travel mm (2) 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre tensioning (torque-control valve) mm 6
900	10,3+ 0,1	8,0 - 8,1	0,3(0,45)			
250	6,5-6,7	0,9 - 1,5	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in ☐

B. Governor Settings

(1) Upper rated speed rev/min: Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	Intermediate rated speed 4	5	6	(4) Lower rated speed: Control-lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	(3) Torque control: rev/min 10	Control rod travel mm ±0,1 11
loose	800 0,3-1,0 x = 4,0		-	-	-	ca.18	250	5,5	500	10,3
ca.53 (2a)	940-950=9,3 945-975=4,0 1100=0,3-1,7						250 290-350	5,9-6,1 = 2,0	300	11,2

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2b) Full-load stop, Test oil temp 40°C (104°F): rev/min 1	cm³/1000 strokes 2	(6) Rotational-speed limitat, Note changed to) rev/min 3	(3a) Fuel delivery characteristics: rev/min 4	cm³/1000 strokes 5	Starting fuel delivery (5) Idle: rev/min 6	cm³/1000 strokes 7	(4a) Idle stop: rev/min 8	Control rod travel mm 9
900	80,5 - 81,5 (78,5 - 83,5)	940-950*	-	-	100	19,5-21,0 mm RW **	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

11.82

A8

A8

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 DAF 8,3 i 3
4. Edition
En

Testoil-ISO 4113

PE 6 A 90 D 410 RS 2524 RSV 250-750 A 7 B 2124 L

superseds 8.82
company DAF
engine DH, DU 825

Test the manifold-preeure compensator and cold-start according to Service Information. Specifications apply to test tubing 1 680 750 015.

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,30-2,40 (2,25-2,4) mm (from BDC) RW = 9,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
750	9,4-9,5	7,7 - 7,9	0,4(0,55)			
250	6,3-6,5	1,8 - 2,4	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in [ ]

B. Governor Settings

Port closing difference between control-rod travel 9 and max. = 3,0-4,0°.

Upper rated speed: Degree of deflection of control lever 1	Upper rated speed: rev/min 2	Upper rated speed: Control rod travel mm 3	Intermediate rated speed: Degree of deflection of control lever 4	Intermediate rated speed: rev/min 5	Intermediate rated speed: Control rod travel mm 6	(4) Lower rated speed: Degree of deflection of control lever 7	(4) Lower rated speed: rev/min 8	(4) Lower rated speed: Control rod travel mm 9	(3) Torque control: rev/min 10	(3) Torque control: Control rod travel mm 11
loose	800 x =	0,3-1,0 3,25	-	-	-	ca. 16	250	6,4	750	9,4-9,5
							100 250 260-320 380	min.19,0 ** =2,0 max. 1,0	700	9,4-9,7
(5) ca. 40	770-780 = 8,4 795-815 = 4,0 955-0,3-1,7									

** Set idle-speed auxiliary spring at 2,0 mm control-rod travel, then 1/2 turn back.

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2) Full-load stop: Test oil temp. 40°C (104°F) rev/min 1	(2) Full-load stop: cm³/1000 strokes 2	(6) Rotational-speed limitat. Note: changed to ... rev/min 3	(3a) Fuel delivery characteristics: rev/min 4	(3a) Fuel delivery characteristics: cm³/1000 strokes 5	Starting fuel delivery idle: rev/min 6	Starting fuel delivery idle: cm³/1000 strokes 7	(5a) Idle stop: rev/min 8	(5a) Idle stop: Control rod travel mm 9
750	77,0 - 79,0 (75,0 - 81,0)	760-770*	-	-	100	19,5-21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

11.82

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 DAF 8,3 n
3. Edition
En

Testoil-ISO 4113

PE 6 A 95 D 410 RS 2575 RSV 250-750 A7B2124L

superseded 2.82
company DAF
engine DH, DU 825

Specifications apply to test tubing 1 680 750 015

Port closing difference between control-rod travel 9 and max. = 3,0-4,0°.

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,0 - 2,1 (1,95-2,15) mm (from BDC) RW 9,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm 6
750	12,5+0,1	9,9 - 10,1	0,4(0,7)			
250	6,0-6,2	0,7 - 1,3	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in [ ].

B. Governor Settings

Upper rated speed: Degree of deflection of control lever 1	rev/min 2	Control rod travel mm 3	Intermediate rated speed: Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	(4) Lower rated speed: Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	(3) Torque control: rev/min 10	Control rod travel mm 11
loose	800 x =	0,3-1,0 4,25	-	-	-	ca. 15	250	6,1	750	12,5+0,1
							100	min.19,0	700	12,5+0,3
							250	**		
ca. 40 (5)	11,5	770-780					260-320	= 2,0	mm	
	4,0	795-815					380	max. 1,0		
	955	0,3-1,7								

** Set idle-speed auxiliary spring at 2,0 mm control-rod travel, then 1/2 turn back.

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2) Full-load stop, Test oil temp. 40°C (104°F): rev/min 1	cm³/1000 strokes 2	(6) Rotational-speed limitat. Note: changed to ... rev/min 3	(3a) Fuel delivery characteristics: rev/min 4	cm³/1000 strokes 5	Starting fuel delivery idle: rev/min 6	cm³/1000 strokes 7	(5a) Idle stop: rev/min 8	Control rod travel mm 9
750	98,5 - 100,5 (96,5 - 102,5)	770-780*	-	-	100	19,5-21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

10.82

A10

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 RVI 8,8 b 1
4. Edition
En

PES 6 P 120 A 320 RS 417 ROV 300-1150 PA 527 K

supersedes 10.82
company: RVI
engine: MIDS 062030
158 kW (215 PS)

Values apply to
engine nozzle-and-holder assemblies 1 688 901 019
and engine fuel-injection tubing 1 680 750 067

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testöl-ISO 4113

A. Fuel Injection Pump Settings

Port closing mark 9.5° camshaft after port closing of cylinder 1.

Port closing at prestroke 2,8-2,9 (2,75-2,95) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	8,5-8,6	14,8-15,0	0,5(0,9)			
600	2,7-2,8	1,3- 1,9	0,8(0,7)			

Adjust the fuel delivery from each outlet according to the values in [ ].

B. Governor Settings

Upper rated speed: Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min (1a) (2a) 3	Intermediate rated speed: Degree of deflection of control lever 4	rev/min 5	Control rod travel mm (4) 6	Lower rated speed: Degree of deflection of control lever 7	rev/min 8	Control rod travel mm (3) 9	Sliding sleeve travel (1): rev/min 10	mm 11
max.	1200	15,2-17,8	-	-	-	ca.10	100	min.5,7	250	0,4-0,7
							300	4,1-4,3	550	3,6-3,7
ca. 58	7,5	1205-1215							850	5,1-5,2
	4,0	1275-1305				330-345 (3a)			1150	7,5
	1400	0-1,0								

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) (2): rev/min 1	cm³/1000 strokes 2	Rotational-speed limitation (2b) intermediate speed (4a): rev/min 3	Fuel delivery characteristics high idle speed (5a) (5b): rev/min 4	cm³/1000 strokes 5	Starting fuel delivery idle switching point (6): rev/min 6	cm³/1000 strokes 7	Torque-control travel (5): rev/min 8	Control rod travel mm 9
1150	147,5-149,5 (144,5-152,5)	1205-1215*	750	132,0-138,0 (129,0-141,0)	100	120,0-140,0	1150	8,5+0,1
					300	18,0- 24,0	350	7,0+0,4
			500	80,0-86,0 (77,0-89,0		220 (100)	750	7,7+0,2
							500	7,2+0,3

Checking values in brackets

* 1 mm less control rod travel than col 2

11.82

BOSCH
Geschäftsbereich KH Kundendienst. Kfz-Ausrüstung
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A11

Test Specifications Fuel Injection Pumps (1A) and Governors

WPP 001/4 MB 3,8 e4
1. Edition
En

PES 4A 90 D 410 RS 2294 RSV 350-1400 A0B 2006L

supersedes
company Daimler-Benz
engine OM 314
63 kW (85PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15-2,25 (2,10-2,30) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm (2) 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1380	10,4+0,1	6,4-6,5	0,3(0,45)			
350	9,2-9,4	2,4-3,0	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in [ ]

B. Governor Settings

(1) Upper rated speed rev/min: Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	Intermediate rated speed 4 5 6	(4) Control-lever deflection in degrees 7	Lower rated speed: rev/min 8	Control rod travel mm 9	(3) Torque control: rev/min 10	Control rod travel mm 11
loose	800 X=	0,3-1,0	- - -	ca.31	350	9,3	-	-
ca.62 (2a)	9,4 4,0 1600	1420-1430 1490-1505 0,3- 1,7			100 350 510-570 650	min.19,0 9,2-9,4 =2,0** max.1,0		

** numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2b) Full-load stop, Test oil temp 40°C (104°F): rev/min 1	cm³/1000 strokes 2	(6) Rotational-speed limitat, Note changed to) rev/min 3	(3a) Fuel delivery characteristics: rev/min 4	cm³/1000 strokes 5	Starting fuel delivery (5) Idle: rev/min 6	cm³/1000 strokes 7	(4a) Idle stop: rev/min 8	Control rod travel mm 9
1380	63,5-64,5 (61,5-66,5)	1420-1430*	-	-	100	14,7-15,3 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

Set idle-speed auxiliary spring at 2,0 mm control-rod travel, then 1/2 turn back.

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BOSCH Geschäftsbereich KH Kundendienst Kfz-Ausrüstung

Test Specifications Fuel Injection Pumps (1A) and Governors

WPP 001/4
4. Edition:
En

Testoil-ISO 4113

PES 6 A 85 D 320/3 RS 2339 RSV 350-1250 A 1 B 279 R

supersedes 8.80
company Motori VM
engine 106 SU, 956 SU

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (2,95-3,15) 3,00-3,10 RW9 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm (2) 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque control valve) mm 6
750	9,7-9,8	5,3 - 5,4	0,3(0,45)			
350	7,3-7,5	1,0 - 1,6	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in [ ]

B. Governor Settings

(1) Upper rated speed rev/min: Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	Intermediate rated speed 4 5 6	(4) Lower rated speed: Control-lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	(3) Torque control: rev/min 10	Control rod travel mm 11
loose	800 0,3-1,0 x = 2,75			ca.16	350	5,5		
ca.58 (2a)	1290-1300=8,7 1300-1330=4,0 1465=0,3-1,7				100 350 500 405-465	min.19 5,9-6,1 max.1,0 = 2,0		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2b) Full-load stop, Test oil temp 40°C (104°F): rev/min 1	cm³/1000 strokes 2	(6) Rotational-speed test at: Note changed to) rev/min 3	(3a) Fuel delivery characteristics: rev/min 4	cm³/1000 strokes 5	Starting fuel delivery, Idle (5): rev/min 6	cm³/1000 strokes 7	(4a) Idle stop: rev/min 8	Control rod travel mm 9
750	53,5 - 54,5 (51,5 - 56,5)	1290-1300*			100	110,0-130,0 = 19,0 - 21,0 mm RW	1250 500 400	9,7-9,8 9,7-9,9 10,8-11,4

Checking values in brackets

* 1 mm less control rod travel than col 2

Port closing difference between control-rod travel 9 mm and max. = 6.0-7.0°.

11.82

A13

Test Specifications Fuel Injection Pumps and Governors ②

WPP 001/4 DAF 8,3i
3. Edition
En

Testoil-ISO 4113

PE 6 A 90 D 410 RS 2524 RQ 225/1200 AB 1008 L

supersedes 8.80
company DAF
engine DH 825

Specifications apply to test tubing 1 680 750 015

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,30-2,40 (2,25-2,45) RW9 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9,4-9,5	7,0 - 7,1	0,3(0,45)			
225	6,5-6,7	0,9 - 1,5	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in ☐

B. Governor Settings

Port closing difference between control-rod travel 9 mm and max. = 4,5 - 5,5°.

Checking of slider PRG check ①		Full-load speed regulation Setting point		Test specifications ④		Idle speed regulation Setting point		Test specifications ⑤		Torque control ③	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
650	19,2-20,8	650	20,0	8,4	1245-1260	225	8,7	100	min. 10,2	-	-
				4,0	1325-1355						
VH =	max. 46°			1500	0 - 1,0			225	8,6 - 8,8		
									410-450=2.0		
								550	max. 1,0		

Torque-control travel on flyweight assembly dimension a = mm

Speed regulation: At 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever ② Test oil temp. 40°C (104°F)		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery idle speed ⑤	
rev/min 1	cm³/-1000 strokes 2	rev/min 3	rev/min 4	cm³/-1000 strokes 5	rev/min 6	Control rod travel cm³/1000 strokes / mm 7
1000	70,0 - 71,0 (68,0 - 73,0)	600	-	-	-	-

Checking values in brackets

11.82

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Test Specifications Fuel Injection Pumps ② and Governors

WPP 001/4 MAN 5,9 e1
1. Edition
En

PE 6 AM 70D 412 RS 1001 RQ 250/1275 AB 344 DL

supersedes -
company MAN
engine D 0026 M8A

Position "Diesel" = lever in contact
Position "Gasoline" = lever not in contact

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,95-2,05 (1,9-2,1) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1275	12,0+0,1	4,7-4,8	0,3(0,3)			
250	7,9-8,1	1,0-1,6	0,2(0,3)			

Adjust the fuel delivery from each outlet according to the values in [ ]

B. Governor Settings

Checking of slider PRG check ①		Full-load speed regulation Setting point		Test specifications ④		Idle speed regulation Setting point		Test specifications ⑤		Torque control ③	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
600	15,6-16,4	600	16,0	11,0	1320-1335	250	6,0	100	min. 7,5	1275	12,0-12,1
				4,0	1375-1405			250	5,9-6,1	600	12,9-13,0
				1450	0 - 1,0			365-405	= 2,0	860	12,8-13,0
								450	max. 1,0	1145	12,2-12,5

Torque-control travel on flyweight assembly dimension a = mm Speed regulation At 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) ②		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min 1	cm³/-1000 strokes 2	rev/min 3	rev/min 4	cm³/-1000 strokes 5	rev/min 6	Control rod travel cm³/1000 strokes / mm 7
"Diesel"						
1275	46,5-47,5 (45,5-48,5)	-	700	49,0-52,0 (48,0-53,0)	100	19,0 - 21,0 mm RW
"Gasoline"						
1275	58,5-62,5 (57,5-63,5)					

Checking values in brackets

8.82

BOSCH Geschäftsbereich KH Kundendienst Kfz-Ausrüstung

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 KHD 1 g 1

2. Edition

En

PES3A85D410/3 RS 2642 RSV325-1150A8B2102-1L

1 - 3 - 2 je 120° ±0,5° (± 0,75°)

supersedes 6.82
company KHD
engine F3L 913
42 kW (57 PS)$_1$
2300 min
Tractor D 6007-S23

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,5-2,6 (2,45-2,65) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	11,8+0,1	6,6-6,7	0,3 (0,45)			
325	8,9-9,1	1,7-2,3	0,2 (0,4)			

Adjust the fuel delivery from each outlet according to the values in [illegible]

B. Governor Settings

Upper rated speed: Degree of deflection of control lever 1	rev/min 2	Control rod travel mm 3	Intermediate rated speed: Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	④ Lower rated speed: Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	③ Torque control: rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	ca.20	325	8,5	1150	11,5+0,1
	X=						100	min.19,0	700	11,8+0,1
**							325	8,9-0,1	1075	11,6+0,3
⑤ ca.54	10,2	1190-1200					485-545=2,0			
	4,0	1265-1295								
	1350	0,3 -1,7								

** Set speed regulation before torque control.

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop, Test oil temp 40°C (104°F): rev/min 1	cm³/1000 strokes 2	⑥ Rotational-speed limitat: Note changed to rev/min 3	③a Fuel delivery characteristics: rev/min 4	cm³/1000 strokes 5	Starting fuel delivery Idle: rev/min 6	cm³/1000 strokes 7	⑤a Idle stop: rev/min 8	Control rod travel mm 9
700	66,0-67,0 (64,0-69,0)	1190-1200	1150	70,5-73,5 (68,5-75,5)	100	133,5-143,5	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

9.82

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BOSCH Geschäftsbereich KH Kundendienst Kfz-Ausrüstung

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 MB 5,7 r 4
3. Edition
En

PES 6 A 90 D 410 RS 2293 RSV 350-750 A0B 741 L

supersedes 6.82

company Daimler-Benz
engine OM 352 A
62,5 kW (85 PS)

Testrite

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15-2,25 (2,10-2,30) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	10,9+0,1	6,3 - 6,5	0,3(0,45)			
350	7,9-8,1	1,9 - 2,3	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in [ ]

B. Governor Settings

Upper rated speed			Intermediate rated speed			(4) Lower rated speed			(3) Torque control	
Degree of deflection of control lever 1	rev/min 2	Control rod travel mm 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3 - 1,0	-	-	-	ca. 15	350	8,0	-	-
	x = 20							**		
ca.26 (5)	750	9,9								
	788-796	4,0								
	820	0,3-1,7								

** Set auxiliary idle spring at 2.0 mm control-rod travel.

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2) Full-load stop		(6) Rotational-speed limitat.	(3a) Fuel delivery characteristics		Starting fuel delivery Idle		(5a) Idle stop	
Test oil temp 40°C (104°F)		Note: changed to ...						Control rod travel
rev/min 1	cm³/1000 strokes 2	rev/min 3	rev/min 4	cm³/1000 strokes 5	rev/min 6	cm³/1000 strokes 7	rev/min 8	mm 9
700	63,0-65,0 (61,0-67,0)	750 *	-	-	100	78,0-88,0	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

11.82

A17

Testoil-ISO 4113

PE 6 A 90 D 320 RS 2547
PE 6 A 90 D 320 RS 2577

RSV 250-900 A7B 2061 R

supersedes 6.81
company DAF
engine DT 615, DF 615

Inlet pressure 1,5 bar!

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,2-2,3 (2,15-2,35) mm (from BDC) RW 9 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
900	10,5+0,1	8,5 - 8,6	0,3(0,45)			
250	5,9-6,1	1,3 - 1,9	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in [ ].

Port closing difference between control-rod travel 9 mm and max. = 2.5 - 3.5° camshaft.

B. Governor Settings

Upper rated speed: Degree of deflection of control lever 1	rev/min 2	Control rod travel mm 3	Intermediate rated speed: Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	(4) Lower rated speed: Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	(3) Torque control: rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	ca.19	250	5,5	650	10,5+0,1
	X =	4,0							370	11,7+0,6
ca.53	9,5	940-950					250	5,9-6,1		
(5)	4,0	945-975					290-350	=2,0mm		
	1100	0,3 - 1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2) Full-load stop, Test oil temp. 40°C (104°F): rev/min 1	cm³/1000 strokes 2	(6) Rotational-speed limitat. Note: changed to ... rev/min 3	(3a) Fuel delivery characteristics: rev/min 4	cm³/1000 strokes 5	Starting fuel delivery Idle: rev/min 6	cm³/1000 strokes 7	(5a) Idle stop: rev/min 8	Control rod travel mm 9
900	85,0 - 86,0 (83,0 - 88,0)	940-950*	-	-	100	19,5-21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

8.82

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 HOR 2,4 a
2. Edition
En

Testoil-ISO 4113

PES 3 A 80 D 410/3 RS 1336 RSV 400-1250 A0B 1123 L

supersedes 2.82
company Holder
engine VD 6001-4
Tractor A 60

1 - 2 - 3 je 120° ± 0,5° (± 0,75°)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,7 - 1,8 (1,65-1,85) mm (from BDC) RW 9 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1230	11,0+0,1	7,0 - 7,1	0,2(0,35			
400	7,9 -8,1	0,9 - 1,5	0,2(0,3)			

Adjust the fuel delivery from each outlet according to the values in [ ].

Port closing difference between control-rod travel 9 mm and max. = 9-10° camshaft.

B. Governor Settings

Upper rated speed			Intermediate rated speed			(4) Lower rated speed			(3) Torque control	
Degree of deflection of control lever 1	rev/min 2	Control rod travel mm 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3 - 1,0	-	-	-	ca.24	400	7,5	-	-
	X =	4,25					100	min.19,0		
							400	7,9-8,1		
ca. 48 (5)	10,0	1270-1280					550-610	=2,0mm		
	4,0	1335-1365								
	1500	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2) Full-load stop Test oil temp. 40°C (104°F)		(6) Rotational-speed limitat.	(3a) Fuel delivery characteristics		Starting fuel delivery idle		(5a) Idle stop	
rev/min 1	cm³/1000 strokes 2	Note: changed to ... rev/min 3	rev/min 4	cm³/1000 strokes 5	rev/min 6	cm³/1000 strokes 7	rev/min 8	Control rod travel mm 9
1230	70,0 - 71,0 (68,5 - 72,5)	1270-1280 *	-	-	100	19,5-21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

11.82

A19

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Test Specifications Fuel Injection Pumps (1A) and Governors

WPP 001/4 SCL 7,4 b
1. Edition
En

Testoil·ISO 4113

PES 6 A 95 D 410 RS 2614 RSV 325-1100 A 1 B 2111 L supersedes

company Schlueter

engine SDMT 110 W 6

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (1,75-1,95) 1,80-1,90 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm (2) 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	12,6+0,1	10,8 - 11,0	0,3(0,6)			
325	7,4-7,6	0,9 - 1,5	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in ☐

B. Governor Settings

(1) Upper rated speed rev/min: Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	Intermediate rated speed 4	5	6	(4) Control-lever deflection in degrees 7	Lower rated speed: rev/min 8	Control rod travel mm 9	(3) Torque control: rev/min 10	Control rod travel mm 11 +0,1
loose	800 0,3-1,0 X = 5,0					ca. 27	325	7,0	1100	12,6
							100	min. 19	785	12,7
ca.61 (2a)	1140-1150 =11,6 1220-1250 = 4,0 1385= 0,3-1,7						325 625	7,4-7,6 0 - 1	500	13,0

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2b) Full-load stop, Test oil temp. 40°C (104°F): rev/min 1	cm³/1000 strokes 2	(6) Rotational-speed limitat, Note: changed to ..) rev/min 3	(3a) Fuel delivery characteristics: rev/min 4	cm³/1000 strokes 5	Starting fuel delivery (5) Idle: rev/min 6	cm³/1000 strokes 7	(4a) Idle stop: rev/min 8	Control rod travel mm 9
1100	108,0 - 110,0 (106,0 - 112,0)	1140-1150*	500	102,5 - 105,5 (100,5 - 107,5)	100	19-21 mm RW	325	7,5

Checking values in brackets

* 1 mm less control rod travel than col 2

11.82

A20

A20

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 8,8 a 2
1. Edition

En

PES 4 A 95 D 410 RS 2424 RSV 300-900 A7B 616 DL

supersedes –
company TAM
engine F4L413R

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke 1,75,1,85 (1,70-1,90) mm (from BDC) RW 10,5

Rotational speed rev/min 1	Control rod travel mm (2) 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
900	8,8-8,9	7,6-7,8	0,3 (0,6)			
300	5,9-6,1	0,7-1,3	0,3 (0,5)			

Adjust the fuel delivery from each outlet according to the values in ☐

B. Governor Settings

(1) Upper rated speed rev/min: Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	Intermediate rated speed 4	5	6	(4) Control-lever deflection in degrees 7	Lower rated speed: rev/min 8	Control rod travel mm 9	(3) Torque control: rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	ca.27	300	5,5	900	8,8-8,9
	X = 5,5						100	min. 19,0	600	9,4-9,6
ca.58	7,8	940-950					300	5,9-6,1	400	9,8-9,9
	4,0	945-975					435-495	= 2,0		
(2a)	1100	0,3-1,7					600	max. 1,0		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2b) Full-load stop, Test oil temp. 40°C (104°F): rev/min 1	cm³/1000 strokes 2	(6) Rotational-speed limitat, Note: changed to .) rev/min 3	(3a) Fuel delivery characteristics: rev/min 4	cm³/1000 strokes 5	Starting fuel delivery (5) Idle: rev/min 6	cm³/1000 strokes 7	(4a) Idle stop: rev/min 8	Control rod travel mm 9
900	75,5-77,5	940-950*	-	-	100	115,0-125,0 = 12,5-13,1 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

11.82

BOSCH Geschäftsbereich KH Kundendienst Kfz-Ausrüstung

A21

A21

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 EIC 3,9 f
1. Edition
En

PES 4 A 80 D 320 RS 2651 RSV 300-1075 A1B 2175 R

supersedes -
company Eicher
engine: EDL 4-1

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15-2,25 (2,1 -2,3) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1075	10,5+0,1	6,2-6,3	0,2 (0,35)			
300	9,4-9,6	3,0-4,0	0,2 (0,3)			

Adjust the fuel delivery from each outlet according to the values in [ ].

B. Governor Settings

Upper rated speed: Degree of deflection of control lever 1	rev/min 2	Control rod travel mm 3	Intermediate rated speed: Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	(4) Lower rated speed: Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	(3) Torque control: rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	ca. 26	300	9,0	1075	10,5+0,1
	X =	5,5					100	min 19,5	500	11,3+0,1
ca. 57	9,5	1115-1125					300	9,4-9,6	825	10,8+0,2
(5)	4,0	1165-1195					450-510	=2,0		
	1330	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2) Full-load stop: Test oil temp. 40°C (104°F) rev/min 1	cm³/1000 strokes 2	(6) Rotational-speed limitat. Note: changed to ... rev/min 3	(3a) Fuel delivery characteristics: rev/min 4	cm³/1000 strokes 5	Starting fuel delivery idle: rev/min 6	cm³/1000 strokes 7	(5a) Idle stop: rev/min 8	Control rod travel mm 9
1075	62,0-63,0 (60,5-64,5)	1115-1125*	600	64,5-66,5 (63,0-68,0)	100	17,4-18,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

11.82

BOSCH Geschäftsbereich KH Kundendienst Kfz-Ausrüstung

Test Specifications Fuel Injection Pumps and Governors

40

WPP 001/4 MAN 11,1 g
2. Edition
En

Testoil-ISO 4113

PES 6 A 95 D 410 LS 2485 RQ 250/1100 AB965D

supersedes 2.76
company M A N
engine D 2566 M/MF (240 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,50-1,60 (1,45-1,65) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	11,7+0,1	12,3 - 12,5	0,3(0,6)			
250	6,0-6,2	1,1 - 1,7	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider		Full-load speed regulation				Idle speed regulation				Torque control	
		Setting point		Test specifications		Setting point		Test specifications			
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	rev/min 5	Control rod travel mm 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
600	15,6-16,4	600	16,0	1140 1180 1220 1260	15,6-16,0 6,6-12,8 0 - 7 0	560	0	150 250 350 460	7,0-8,1 5,3-7,5 2,4-4,6 0	-	-

Torque-control travel on flyweight assembly dimension a = 0 mm

Speed regulation: At 1145-1160(1140-1165)

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery	
rev/min 1	cm³/-1000 strokes 2	rev/min 3	rev/min 4	cm³/-1000 strokes 5	rev/min 6	cm³/100 strokes 7
1100	123,0 - 125,0 (121,0 - 127,0)		500	113,5 - 118,5 (111,5 - 120,5)	100	108,5-116,5 = 12,6-13,0 mm RW

Checking values in brackets

11.82

A23

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 MB 14,6 n
2. Edition
En

Testoil-ISO 4113

PE 8 P 110 A 320 LS 3802 RQ 750 PA 374 R

8 - 7 - 2 - 6 - 3 - 5 - 4 - 1 je 45° ± 0,5° (± 0,75°)

supersedes 7.81
company Daimler-Benz
engine OM 420
154 kW (209 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 4,0 - 4,1 (3,95-4,15) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	13,9+0,1	14,2 - 14,4	0,4(0,8)			
300	8,3-8,4	1,3 - 1,9	0,4(0,7)			

Adjust the fuel delivery from each outlet according to the values in ☐

B. Governor Settings

Checking of slider		Full-load speed regulation				Idle speed regulation				Torque control	
		Setting point		Test specifications		Setting point		Test specifications			
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	rev/min 5	Control rod travel mm 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
-	-	-	-	12,9 6,1	750-755 780-790	-	-	-	-	-	-

Torque-control travel on flyweight assembly dimension a = mm

Speed regulation At 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery	
rev/min 1	cm³/-1000 strokes 2	rev/min 3	rev/min 4	cm³/-1000 strokes 5	rev/min 6	cm³/100 strokes 7
700	142,0 - 144,0 (139,0 - 147,0)	-	-	-	100	130,0 - 150,0

Checking values in brackets

11.82

A24

A24

Test Specifications Fuel Injection Pumps and Governors (1A)

40

WPP 001/4 MB 3,8 p 1
1. Edition

En

PES 4 A 90 D 410 RS 2294 RSV 750-1400 AOB 2032 DL

supersedes
company Daimler-Benz
engine OM 314
62,5 kW (85 PS)

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15-2,25 (2,10-2,30) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm (2) 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1345	10,5 + 0,1	6,8-6,9	0,3(0,15)			
750	5,9-6,1	1,7-2,3	0,2 (0,2)			

Adjust the fuel delivery from each outlet according to the values in ☐

B. Governor Settings

(1) Upper rated speed rev/min: Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	Intermediate rated speed 4	5	6	(4) Lower rated speed: Control-lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	(3) Torque control: rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	ca.30	750	6,0	450	12,2+0,2
	x =	3,75					100	min.19,0	600	10,5+0,2
ca.51	9,5	1385-1390					750	5,9-6,1		
(2a)	4,0	1435-1440					765-795	= 2,0		
	1500	0,3 - 1,7					820	max. 1,0		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2b) Full-load stop, Test oil temp 40°C (104°F): rev/min 1	cm³/1000 strokes 2	(6) Rotational speed limiter, Note changed to) rev/min 3	(3a) Fuel delivery characteristics: rev/min 4	cm³/1000 strokes 5	Starting fuel delivery Idle (5): rev/min 6	cm³/1000 strokes 7	(4a) Idle stop: rev/min 8	Control rod travel mm 9
1345	68,0-69,0 (66,0-71,0)	1385-1390*	-	-	100	73,0-83,0	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

11.82

BOSCH Geschäftsbereich KH Kundendienst Kfz-Ausrüstung

B1

Test Specifications Fuel Injection Pumps (1A) and Governors

En

PES 4 A 90 D 4 10 RS 2294 RSV 750-1400 A0B 2022 DL

supersedes
company Daimler-Benz
engine OM 314
62,5 kW (85 PS)

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15-2,25 (2,10-2,30) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm (2) 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1345	10,5+0,1	7,2-7,3	0,3(0,45)			
750	5,9-6,1	1,7-2,3	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in ☐

B. Governor Settings

(1) Upper rated speed rev/min: Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	Intermediate rated speed: 4	5	6	(4) Lower rated speed: Control-lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	(3) Torque control: rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	ca. 30	750	6,0	450	12,2+0,2
	X = 3,75						100	min. 19,0	600	10,5+0,2
ca. 51	9,5	1385-1390					750	5,9-6,1		
(2a)	3,6	1435-1440					765-795	= 2,0		
	1500	0,3-1,7					820	max.1,0		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2b) Full-load stop: Test oil temp 40°C (104°F) rev/min 1	cm³/1000 strokes 2	(6) Rotational-speed limitat: Note changed to) rev/min 3	(3a) Fuel delivery characteristics: rev/min 4	cm³/1000 strokes 5	Starting fuel delivery (5): Idle rev/min 6	cm³/1000 strokes 7	(4a) Idle stop: rev/min 8	Control rod travel mm 9
1345	71,5-72,5 (69,5-74,5)	1385-1390*	-	-	100	85,0-92,0 = 14,3-14,7 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

11.82

B2

Test Specifications Fuel Injection Pumps and Governors

(1) WPP 001/4 MB 11,0 c 2

1. Edition

En

PE 6 P 110 A 320 LS 3805 RQV 300-1150 PA 524-4

supersedes

company Daimler-Benz

engine OM 421 159 kW (216 PS)

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 4,0-4,1 (3,95-4,15) mm (from BDC) RW 9,0 - 12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	12,5+0,1	12,8 - 13,0	0,4 (0,8)			
300	7,7-7,9	1,2 - 1,8	0,4 (0,7)			

Adjust the fuel delivery from each outlet according to the values in ☐

B. Governor Settings

Upper rated speed: Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min (1a) (2a) 3	Intermediate rated speed: Degree of deflection of control lever 4	rev/min 5	Control rod travel mm (4) 6	Lower rated speed: Degree of deflection of control lever 7	rev/min 8	Control rod travel mm (3) 9	Sliding sleeve travel (1): rev/min 10	mm 11
max.	1150	15,2-17,8	-	-	-	ca. 19	100	min.10,0	250	1,0-1,2
							300	8,3-8,5	550	3,4-3,7
ca. 65	11,5	1190-1200							850	4,9-5,3
	4,0	1240-1270				330-730			1150	7,7
	1400	0 - 1,0				(3a)				

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F) (2): rev/min 1	cm³/1000 strokes 2	Rotational-speed limitation (2b) intermediate speed (4a): rev/min 3	Fuel delivery characteristics (5a) high idle speed (5b): rev/min 4	cm³/1000 strokes 5	Starting fuel delivery (6) idle switching point: rev/min 6	cm³/1000 strokes 7	Torque-control travel (5): rev/min 8	Control rod travel mm 9
1150	128,0-130,0 (125,0-133,0)	1190-1200*	600	120,0-124,0 (117,0-127,0)	100	130,0-150,0	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

11.82

BOSCH Geschäftsbereich KH Kundendienst Kfz-Ausrüstung

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 MB 5,7 n 10
1. Edition
En

PES 6 A 90 D 410 RS 2293 RQV 300-1425 AB 780 L
781 L
925 L

supersedes
company Daimler-Benz
engine OM 352
96 kW (131 PS)

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15-2,25 (2,10-2,30) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1400	9,7-9,8	6,2 - 6,3	0,3(0,45)			
300	7,5-7,7	0,9 - 1,5	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in [ ].

B. Governor Settings

.. 780 L, ..781 L u. ..925 L

Upper rated speed: Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm (1a) rev/min (2a) 3	Intermediate rated speed: Degree of deflection of control lever 4	rev/min 5	Control rod travel mm (4) 6	Lower rated speed: Degree of deflection of control lever 7	rev/min 8	Control rod travel mm (3) 9	Sliding sleeve travel (1): rev/min 10	mm 11
max.	1470	15,2-17,8	-	-	-	ca.14	100	min.9,1	250	0,6-1,0
							300	7,5-7,7	640	3,2-3,6
ca. 59	8,7	1455-1465					875	max.1,0	1035	5,5-5,8
	4,0	1550-1580				370-520			1425	8,1
	1700	0 - 1,0								
						(3a)				

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery, Control-rod stop, Test oil temp. 40°C (104°F) (2): rev/min 1	cm³/1000 strokes 2	Rotational-speed limitation (2b) intermediate speed (4a): rev/min 3	Fuel delivery characteristics high idle speed (5a) (5b): rev/min 4	cm³/1000 strokes 5	Starting fuel delivery idle switching point (6): rev/min 6	cm³/1000 strokes 7	Torque-control travel (5): rev/min 8	Control rod travel mm 9
1400	61,5 - 62,5 (59,5-64,5)	1455 - 1465*	-	-	100	71,0-8,10 = 13,9-14,3 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

11.82

B4

BOSCH
Geschäftsbereich KH Kundendienst Kfz-Ausrüstung

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MB 3,8 n 9
2. Edition

En

PES 4 A 90 D 410 RS 2570 RQV 300-1400 AB 1111-3L

supersedes 8.82
company Daimler-Benz
engine: OM 314
57 kW (77 PS)

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,25-2,35 (2,20-2,40) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1400	10,5+0,1	5,9 - 6,0	0,3(0,45)			
300	8,3-8,5	0,9 - 1,5	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in ☐

B. Governor Settings

Upper rated speed: Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min (1a) (2a) 3	Intermediate rated speed: Degree of deflection of control lever 4	rev/min 5	Control rod travel mm (4) 6	Lower rated speed: Degree of deflection of control lever 7	rev/min 8	Control rod travel mm (3) 9	Sliding sleeve travel (1): rev/min 10	mm 11
max.	1500	15,2-17,8	-	-	-	ca. 24	100	min.10,0	250	0,7-0,9
ca.63	9,5	1440-1450					300	8,3-8,5	630	4,8-4,9
	4,0	1535-1565							1020	5,3-5,4
	1650	0 - 1,0					545-605 = 2,0		1400	7,7
						(3a)				

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) (2): rev/min 1	cm³/1000 strokes 2	Rotational-speed limitation (2b) intermediate speed (4a): rev/min 3	Fuel delivery characteristics (5a) high idle speed (5b): rev/min 4	cm³/1000 strokes 5	Starting fuel delivery (6) Idle switching point: rev/min 6	cm³/1000 strokes 7	Torque-control (5) travel: rev/min 8	Control rod travel mm 9
1400	59,0-60,0 (57,0-62,0)	1440-1450*	400	44,0-46,0 (42,0-48,0)	100	71,0-81,0	1400	10,5+0,1
							400	11,4+0,1
							600	11,1+0,2
							1000	10,8+0,3
						220 (240)		

Checking values in brackets

* 1 mm less control rod travel than col 2

11.82

B5

BOSCH Geschäftsbereich KH Kundendienst Kfz-Ausrüstung
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Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 MB 5,7 z
1. Edition
En

PES 6 A 90 D 410 RS 2293 RSV 750-1500 A 2 B 2156 L

supersedes –
company: Daimler-Benz
engine: OM 352
45 kW (61 PS)

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15-2,25 (2,10-2,30) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1450	6,8-6,9	3,5 - 3,6	0,3 (0,45)			
750	4,1-4,3	0,2 - 0,6	0,2 (0,4)			

Adjust the fuel delivery from each outlet according to the values in [ ]

B. Governor Settings

Upper rated speed: Degree of deflection of control lever 1	rev/min 2	Control rod travel mm 3	Intermediate rated speed: Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	(4) Lower rated speed: Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	(3) Torque control: rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	ca.30	750	4,2	-	-
	x =						765-795 = 2,0			
ca.56	5,8	1495-1500								
(5)	4,0	1522-1543								
	1575	0,3-1,0								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2) Full-load stop, Test oil temp. 40°C (104°F): rev/min 1	cm³/1000 strokes 2	(6) Rotational-speed limitat. Note: changed to ... rev/min 3	(3a) Fuel delivery characteristics: rev/min 4	cm³/1000 strokes 5	Starting fuel delivery Idle: rev/min 6	cm³/1000 strokes 7	(5a) Idle stop: rev/min 8	Control rod travel mm 9
1450	34,5-35,5 (32,5-37,5	1495-1500*	-	-	100	58,0-68,0	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

10.82

BOSCH Geschäftsbereich KH Kundendienst Kfz Ausrüstung
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PES 6 P 100 A 820 LS 351 RQ 300/950 PA 483 R

supersedes-
company: Daimler-Benz
engine: OM 407 H
162 kW (220 PS)

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 3,0-3,1 (2,95-3,15) mm (from BDC) RW = 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
950	13,4±0,1	12,5-12,7	0,3(0,6)			
300	8,0-8,2	1,4-2,0	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in [ ].

B. Governor Settings

Checking of slider PRG check ①		Full-load speed regulation Setting point		Test specifications ④		Idle speed regulation Setting point		Test specifications ⑤		Torque control ③	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
600	13,8-14,6	600	14,2	12,4 4,0 1200	995-1010 1020-1050 0 - 1,0	300	8,1	100 300 370-410	min.10,1 8,0-8,2 = 2,0	-	-

Torque-control travel on flyweight assembly dimension a = - mm

Speed regulation: At 995-1010 min⁻¹

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp 40°C (104°F) ②		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min 1	cm³/-1000 strokes 2	rev/min 3	rev/min 4	cm³/-1000 strokes 5	rev/min 6	Control rod travel cm³/1000 strokes / mm 7
950	125,0-127,0 (123,0-129,0)	600	-	-	100	135,0-155,0

Checking values in brackets

10.82

PE 8 P 120 A 320 LS 3807 RQ 750 PA 374 R

1 - 8 - 7 - 2 - 6 - 3 - 5 - 4 je 45° ± 0,5° (± 0,75°)

Values apply to
engine nozzle-and-holder assemblies 1 688 901 019
and engine fuel-injection tubing 1 680 750 067

supersedes –
company: Daimler-Benz
engine. OM 422 A
196 kW (266 PS)

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 4,0 - 4,1 (3,95-4,15) mm (from BDC) Zyl. 8

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	11,5+0,1	17,8 - 18,0	0,5 (0,9)			
300	5,0-5,2	1,2 - 1,8	0,8 (1,2)			

Adjust the fuel delivery from each outlet according to the values in ☐.

B. Governor Settings

Checking of slider PRG check ①		Full-load speed regulation Setting point		Test specifications ④		Idle speed regulation Setting point		Test specifications ⑤		Torque control ③	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
-	-	-	-	10,5 4,0	750-755 785-795	-	-	-	-	-	-

Torque-control travel on flyweight assembly dimension a = mm Speed regulation: At 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) ②		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min 1	cm³/–1000 strokes 2	rev/min 3	rev/min 4	cm³/–1000 strokes 5	rev/min 6	Control rod travel cm³/1000 strokes / mm 7
700	178,0-180,0 (175,0-183,0)	-	-	-	100	200,0-210,0

Checking values in brackets

10.82

Test Specifications Fuel Injection Pumps and Governors

40

WPP 001/4 MAN 9,2 n1
1. Edition

En

PES 5 A 95 D 410 LS 2543 RQ 250/1050 AB 1042 DL

1 - 3 - 5 - 4 - 2 je 72° ± 0,5° (± 0,75°)

supersedes-
company: MAN
engine: D 2565 M/MR/MFR
121 kW (165 PS)

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,5-1,6 (1,45-1,65) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1050	10,0+0,1	9,2-9,4	0,3(0,6)			
250	6,6+0,2	1,4-1,9	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in ☐.

B. Governor Settings

Checking of slider PRG check (1)		Full-load speed regulation Setting point		Test specifications (4)		Idle speed regulation Setting point		Test specifications (5)		Torque control (3)	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
600	15,6-16,4	600	16,0	9,0 4,0 1250	1095-1110 1140-1170 0 - 1,0	250	6,7	100 250 370-410 500	min. 8,2 6,6-6,8 = 2,0 max. 1,0	1050 910 800 600	10,0-10,1 10,1-10,4 10,5-10,7 10,8-10,9

Torque-control travel on flyweight assembly dimension a = 0,4 mm

Speed regulation: At 1095-1110 min^{-1}

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) (2)		Control rod stop (3a)	Fuel delivery characteristics (3b)		Starting fuel delivery Idle speed (6)	
rev/min 1	cm³/-1000 strokes 2	rev/min 3	rev/min 4	cm³/-1000 strokes 5	rev/min 6	cm³/1000 strokes / Control rod travel mm 7
1050	91,5-93,5 (89,5-95,5)	-	700 500	86,5-89,5 (84,5-91,5) max. 88,5 (max. 90,5)	100	146,5-156,5 16,0-16,8 mm RW

Checking values in brackets

10.82

B9

Test Specifications Fuel Injection Pumps ② and Governors

WPP 001/4 DAF11,6 t
4. Edition
En

Testoil-ISO 4113

PE 6 P 100 A 320 RS 384 RQ 225/1000 PA 571

1 - 5 - 3 - 6 - 2 - 4 je $60^{0}\pm0,5^{o}$ ($\pm0,75^{o}$)

supersedes 8.81
company: DAF
engine: DKDL 1160
125 kW (170 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (3,15-3,35) / 3,20-3,30 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
600	11,4+0,1	9,80 - 10,00	0,3(0,6)			
250	7,5-7,7	0,90 - 1,30	0,3(0,5)			
1000	10,6+0,1	C.Sp. 4-5	0,4(0,7)			

Adjust the fuel delivery from each outlet according to the values in ☐.

B. Governor Settings

Checking of slider PRG check ①		Full-load speed regulation Setting point		Test specifications ④		Idle speed regulation Setting point		Test specifications ⑤		Torque control ③	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
550	15,6-16,4	550	16,0	9,7 4,0 1250	1045-1060 1100-1130 0 - 1,0	250	7,6	100 250 345-385	min. 8,4 7,5-7,7 =2,0	1000 600 820 900	10,6-10,8 11,4-11,5 11,2-11,4 10,8-11,1

Torque-control travel on flyweight assembly dimension a = mm Speed regulation: At 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever ② Test oil temp 40°C (104°F)		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min 1	cm³/-1000 strokes 2	rev/min 3	rev/min 4	cm³/-1000 strokes 5	rev/min 6	Control rod travel cm³/1000 strokes: / mm 7
600	98,0 - 100,0 (96,0 - 102,0)	600	1000	93,0 - 95,0 (91,0 - 97,0)	100	170,0 - 210,0 19,5-21,0 mm RW
					250	9,0 - 13,0

Checking values in brackets

11.82

Test Specifications Fuel Injection Pumps ② and Governors

WPP 001/4 MAN 9,2 a 2
2. Edition
En

PES 5 A 95 D 410 LS 2426 RQ 250/1150 AB 839 L

1 - 3 - 5 - 4 - 2 je 72° ± 0,5° (± 0,75°)

supersedes 6.82
company MAN
engine D 2555 MX/MXF
141 kW (192 PS)

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,3-1,4 (1,25-1,45) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	11,2+0,1	11,5 - 11,7	0,3(0,6)			
250	6,4-6,6	0,9 - 1,5	0,2(0,5)			

Adjust the fuel delivery from each outlet according to the values in ☐.

B. Governor Settings

Checking of slider PRG check ① rev/min 1	Control rod travel mm 2	Full-load speed regulation Setting point rev/min 3	Control rod travel mm 4	Test specifications ④ Control rod travel mm 5	rev/min 6	Idle speed regulation Setting point rev/min 7	Control rod travel mm 8	Test specifications ⑤ rev/min 9	Control rod travel mm 10	Torque control ③ rev/min 11	Control rod travel mm 12
600	15,6-16,3	600	16,0	10,3 4,0	1195-1210 1255-1285	250	6,5	100 250 370-410	min.7,9 6,4-6,6 =2,0	1150 600 935 1015	11,2-11,3 11,6-11,7 11,4-11,6 11,2-11,5

Torque-control travel on flyweight assembly dimension a = mm

Speed regulation: At 1195-1210 min^{-1} 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever ② Test oil temp. 40°C (104°F) rev/min 1	cm³/–1000 strokes 2	Control rod stop ③a rev/min 3	Fuel delivery characteristics ③b rev/min 4	cm³/–1000 strokes 5	Starting fuel delivery Idle speed ⑥ rev/min 6	cm³/1000 strokes / Control rod travel mm 7
1150	114,5-116,5 (112,5-118,5)	250	800 500	115,0-118,0 (113,0-120,0) max. 116,5 (max. 118,5)	100	146,5-156,5

Checking values in brackets

11.82

BOSCH Geschäftsbereich KH Kundendienst Kfz Ausrüstung

B11

PES 5 A 95 D 410 LS 2543 y RQ 250/1100 AB 1039 DL

supersedes: 3.81
company: MAN
engine: D 2565 M/MF (0)

1 - 3 - 5 - 4 - 2 je 72° ± 0,5° (± 0,75°)

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,5-1,6 (1,45-1,65) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	11,0+0,1	9,3-9,5	0,3(0,6)			
250	6,8-7,0	0,9-1,5	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in [ ].

B. Governor Settings

Checking of slider PRG check ① rev/min 1	Control rod travel mm 2	Full-load speed regulation Setting point rev/min 3	Control rod travel mm 4	Test specifications ④ Control rod travel mm 5	rev/min 6	Idle speed regulation Setting point rev/min 7	Control rod travel mm 8	Test specifications ⑤ rev/min 9	Control rod travel mm 10	Torque control ③ rev/min 11	Control rod travel mm 12
600	15,6-16,4	600	16,0	9,2	1145-1160	250	6,9	100	min. 8,4	1100	10,2-10,4
				4,0	1180-1210			250	6,8-7,0	700	11,0-11,1
				1300	0- 1,0			410-470	=2,0	500	11,0-11,2

Torque-control travel on flyweight assembly dimension a = 0,4 mm

Speed regulation: At 1145-1160 min⁻¹

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever ② Test oil temp. 40°C (104°F) rev/min 1	cm³/–1000 strokes 2	Control rod stop ③a rev/min 3	Fuel delivery characteristics ③b rev/min 4	cm³/–1000 strokes 5	Starting fuel delivery Idle speed ⑥ rev/min 6	Control rod travel cm³/1000 strokes / mm 7
700	92,5-94,5 (90,5-96,5)	-	1100	94,5-98,5 (92,5-100,5)	100	146,5-156,5 bei 17,1-17,5 mm RW
			500	90,5-94,5 (88,5-96,5)		

Checking values in brackets

10.82

Test Specifications Fuel Injection Pumps ② and Governors

WPP 001/4 MAN 11,1p13
1. Edition
En

PES 6 A 95 D 410 LS 2542 Z RQ 250/1100 AB 965 DL

supersedes -
company: MAN
engine: D2566 MUH/MUM

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,5-1,6 (1,45-1,65) mm (from BDC) bei RW= 9,0-12,0

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
750	12,7+0,1	12,0-12,2	0,3(0,6)			
250	7,0-7,2	0,9- 1,5	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in [ ].

B. Governor Settings

Checking of slider PRG check ①		Full-load speed regulation				Idle speed regulation				Torque control ③	
		Setting point		Test specifications ④		Setting point		Test specifications ⑤			
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
600	15,6-16,4	600	16,0	11,7	1145-1160	250	7,1	100	min.8,6	-	-
				4,0	1205-1235			250	7,0-7,2		
								380-420	=2,0		
								475	max. 1,0		

Torque-control travel on flyweight assembly dimension a = - mm Speed regulation: At 1145-1160 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever ② Test oil temp. 40°C (104°F)		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min 1	cm³/1000 strokes 2	rev/min 3	rev/min 4	cm³/1000 strokes 5	rev/min 6	Control rod travel cm³/1000 strokes / mm 7
750	119,5-121,5 (117,5-123,5)	-	1100	128,5-131,5 (126,5-133,5)	100	121,5-131,5 bei 14,6-15,0 mm RW
			500	117,5-121,5 (115,5-123,5)		

Checking values in brackets

10.82

B13

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 MAN 11,1p14
1. Edition

En

PES 6 A 95 D 410 LS 2542 RQ 250/1100 AB 965 DL

supersedes -
company MAN
engine D2566 M/MF
177 kW (240PS)

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,5-1,6 (1,45-1,65) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	12,0+0,1	12,5-12,7	0,3(0,6)			
250	6,5-6,7	0,8- 1,4	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in [ ].

B. Governor Settings

Checking of slider PRG check (1)		Full-load speed regulation Setting point		Test specifications (4)		Idle speed regulation Setting point		Test specifications (5)		Torque control (3)	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
600	15,6-16,4	600	16,0	11,0	1145-1160	250	6,0	100	min.7,5	-	-
				4,0	1185-1215			250	5,9-6,1		
				1300	0- 1,0			360-400	=2,0		
								500	max. 1,0		

Torque-control travel on flyweight assembly dimension a = 0 mm

Speed regulation at 1145-1160 min $^{-1}$

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever (2) Test oil temp 40°C (104°F)		Control rod stop (3a)	Fuel delivery characteristics (3b)		Starting fuel delivery Idle speed (6)	
rev/min 1	cm³/-1000 strokes 2	rev/min 3	rev/min 4	cm³/-1000 strokes 5	rev/min 6	Control rod travel mm / cm³/1000 strokes 7
1100	124,5-126,5 (122,5-128,5)	-	750	110,5-113,5 (108,5-115,5)	100	121,5-131,5 bei 14,4-15,0 mm RW
			500	107,5-113,5 (105,5-115,5)		

Checking values in brackets

10.82

Test Specifications Fuel Injection Pumps and Governors (2)

WPP 001/4 MAN 11,1p15
1.Edition
En

PES 6 A 95 D 410 LS 2541 RQ 250/1050AB894 DL

supersedes -
company MAN
engine D2566 MUH
141kW(192PS)

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,5-1,6 (1,45-1,65) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1050	11,3±0,1	10,1-10,5	0,3(0,6)			
250	5,9-6,1	0,8- 1,4	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in [ ].

B. Governor Settings

Checking of slider PRG check (1)		Full-load speed regulation Setting point		Test specifications (4)		Idle speed regulation Setting point		Test specifications (5)		Torque control (3)	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
600	15,6-16,4	600	16,0	10,3	1095-1110	250	6,0	100	min.7,5	1050	11,2-11,4
				4,0	1145-1175			250	5,9-6,1	600	11,8-11,9
				1210	0- 1,0			360-400=2,0		800	11,7-11,9
								450	max.1,0	970	11,4-11,6

Torque-control travel on flyweight assembly dimension a = 0,3 mm

Speed regulation: At 1095-1110 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever (2) Test oil temp. 40°C (104°F)		Control rod stop (3a)	Fuel delivery characteristics (3b)		Starting fuel delivery Idle speed (6)	
rev/min 1	cm³/-1000 strokes 2	rev/min 3	rev/min 4	cm³/-1000 strokes 5	rev/min 6	Control rod travel mm cm³/1000 strokes 7
1050	100,5-104,5 (98,5-106,5)	-	700	104,5-108,5 (102,5-110,5)	100	125,0-135,0 bei 14,2-14,8 mm RW
			500	max.103,5 (max.105,5)		

Checking values in brackets

B15

10.82

Test Specifications Fuel Injection Pumps ② and Governors

WPP 001/4 MB 11,0 c 1
3. Edition

En

PE 6 P 110 A 320 LS 3805 RQ 300/1150 PA 187-6

supersedes 7.81
company: Daimler-Benz
engine: OM 421
159 kW (216 PS)

1- 6- 3 - 5 - 2 - 4
0-75-120-195-240-315 ° ± 0,50° (± 0,75 °)

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 4,0-4,1 (3,95-4,15) mm (from BDC) RW 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	12,5+0,1	12,8-13,0	0,4(0,8)			
300	7,7-7,9	1,2-1,8	0,4(0,7)			

Adjust the fuel delivery from each outlet according to the values in [ ].

B. Governor Settings

Checking of slider PRG check ① Control rod travel		Full-load speed regulation Setting point		Test specifications ④		Idle speed regulation Setting point		Test specifications ⑤		Torque control ③	
rev/min 1	mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
650	13,2-14,0	650	13,6	11,5 4,0	1195-1210 1240-1270	300	7,1	100 300 400	min.8,5 7,0-7,2 440=2,0	-	-

Torque-control travel on flyweight assembly dimension a = - mm

Speed regulation: At 1195-1210 min⁻¹

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever ② Test oil temp. 40°C (104°F)		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min 1	cm³/-1000 strokes 2	rev/min 3	rev/min 4	cm³/-1000 strokes 5	rev/min 6	Control rod travel mm / cm³/1000 strokes 7
1150	128,0-130,0 (125,0-133,0)	-	600	120,0-124,0 (117,0-127,0)	100	130,0-150,0

Checking values in brackets

11.82

Test Specifications Fuel Injection Pumps ② and Governors

WPP 001/4 KHD 8,8 a 3

1. Edition

En

PES 4 A 95 D 410 RS 2424 RQ 275/1200 AB 865 DL

supersedes –

company: TAM

engine: F4L413R

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,75-1,85 (1,70-1,90) mm (from BDC) RW 10,5

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1200	9,0-9,1	7,6-7,8	0,3 (0,6)			
275	5,9-6,1	0,7-1,3	0,3 (0,5)			

Adjust the fuel delivery from each outlet according to the values in ☐.

B. Governor Settings

Checking of slider PRG check ① Control rod travel		Full-load speed regulation Setting point		Test specifications ④		Idle speed regulation Setting point		Test specifications ⑤		Torque control ③	
rev/min 1	mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
600	15,6-16,4	600	16,0	8,0 4,0 1450	1245-1260 1300-1330 0 - 1,0	275	6,0	100 275 370-410 500	min. 7,5 5,9 - 6,1 = 2,0 max. 1,0	1200 950 700	9,0-9,1 9,2-9,5 9,6-9,7

Torque-control travel on flyweight assembly dimension a = 0,35 mm

Speed regulation: At 1245-1260 min⁻¹

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp 40°C (104°F) ②		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min 1	cm³/–1000 strokes 2	rev/min 3	rev/min 4	cm³/–1000 strokes 5	rev/min 6	Control rod travel mm / cm³/1000 strokes 7
1200	75,5-77,5 (73,5-79,5)	700	1000 700	74,5-77,5 (72,5-79,5) 75,5-79,5 (73,5-81,5)	100	115,0-125,0 = 13,7-14,3

Checking values in brackets

11.82

Test Specifications Fuel Injection Pumps and Governors

40

WPP 001/4 DAF 11,6 m
3. Edition

En

Testoil-ISO 4113

PE 6 P 100 A 320 RS 384 RQ 225/1100 PA 450/2 DR

supersedes 10.80
company: DAF
engine: DKL 1160

1 - 5 - 3 - 6 - 2 - 4 ±0,50°
0 -60 -120-180-240-300° (±0,75°)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 3,20-3,30 (3,15-3,35) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
600	11,9-12,0	11,4 - 11,6	0,3(0,6)			
225	7,3-7,5	0,9 - 1,3	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in [ ].

B. Governor Settings

Checking of slider PRG check (1)		Full-load speed regulation Setting point		Test specifications (4)		Idle speed regulation Setting point		Test specifications (5)		Torque control (3)	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
550	15,6-16,4	550	16,0	10,1	1145-1060	225	6,0	100	min.7,6	1050	11,1-11,2
										600	11,9-12,0
1300	0,3- 1,0			4,0	1175-1205			225	7,3-7,5	825	11,7-11,9
								325-365	=2,0	915	11,1-11,4

Torque-control travel on flyweight assembly dimension a = mm Speed regulation: At 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) (2)		Control rod stop (3a)	Fuel delivery characteristics (3b)		Starting fuel delivery Idle speed (6)	
rev/min 1	cm³/-1000 strokes 2	rev/min 3	rev/min 4	cm³/-1000 strokes 5	rev/min 6	Control rod travel cm³/1000 strokes / mm 7
600	114,0 - 116,0 (112,0 - 118,0)	-	1050	105,0 - 108,0 (103,0 - 110,0)	100	195,0 - 235,0 19,5-21,0 mm RW
					225	9,0 - 13,0

Checking values in brackets

11.82

BOSCH Geschäftsbereich KH Kundendienst Kfz Ausrüstung.

B18

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 VOL 10,0 9
1. Edition
En

PE 6 P 110 A 320 RS 310 8 y RQV 250-1100 PA 649.

supersedes
company Volvo
engine THD 100 EC
180 kW (245 PS)

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 3,0-3,1 (2,95-3,15) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	11,1+0,1	13,7-13,9	0,4 (0,8)			2,4-2,6
250	5,0-5,2	3,2-3,6	0,3 (0,6)			(2,2-2,9)

Adjust the fuel delivery from each outlet according to the values in [ ].

B. Governor Settings

Upper rated speed: Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min (1a) (2a) 3	Intermediate rated speed: Degree of deflection of control lever 4	rev/min 5	Control rod travel mm (4) 6	Lower rated speed: Degree of deflection of control lever 7	rev/min 8	Control rod travel mm (3) 9	Sliding sleeve travel (1): rev/min 10	mm 11
max.	1175	15,2-17,8	-	-	-	ca.12 (3a)	100	min.6,7	200	0,6-0,8
							250	5,0-5,2	500	4,2-4,8
ca.59	10,1	1140-1150					345-405 = 2,0		660 bis 1055	6,4-6,5
	4,0	1205-1235								
	1350	0 - 1,0							1100	7,3

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) (2): rev/min 1	cm³/1000 strokes 2	Rotational-speed limitation intermediate speed (2b) (4a): rev/min 3	Fuel delivery characteristics high idle speed (5a) (5b): rev/min 4	cm³/1000 strokes 5	Starting fuel delivery idle switching point (6): rev/min 6	cm³/1000 strokes 7	Torque-control travel (5): rev/min 8	Control rod travel mm 9
LDA 700	0.75 bar 137.0-139.0 (134.0-142.0)	1140-1150*	LDA 700	0 bar 105.0-107.0 (102.0-110.0)	180	170,0-200,0 = 20,0 - 21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

11.82

B19

B13

BOSCH
Geschäftsbereich KH Kundendienst, Kfz-Ausrüstung.

D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing / increasing pressure – in bar gauge pressure

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel - diminution difference mm (1)
PE6P..RS3108y + RQV..PA649	0,30		10,5 - 10,6
		0,75	11,1 - 11,2
		0	9,6 - 9,8
		0,22	10,0 - 10,2

Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ② and Governors

WPP 001/4 STE 12,0 b
1. Edition
En

PE 8 P 110 A 121 LS 3113 RQ 300-1100 PA 646

1-5-4-8-6-3-7-2 je 45° ± 0,5° (± 0,75°)

supersedes -
company STEYR
engine WD815.64
240 kW (326 PS)

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,8-2,9 (2,75-2,95) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	12,0+0,1	15,8-16,0	0,4(0,8)			
300	6,1-6,3	1,5-2,1	0,4(0,7)			

Adjust the fuel delivery from each outlet according to the values in ☐.

B. Governor Settings

Checking of slider PRG check ① Control rod travel		Full-load speed regulation Setting point		Test specifications ④		Idle speed regulation Setting point		Test specifications ⑤		Torque control ③	
rev/min 1	mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
600	15,6-16,4	600	16,0	11,0 4,0 1400	1135-1150 1200-1230 0 - 1,0	300	6,2	100 300 400	min.7,7 6,1-6,3 460=2,0	-	-

Torque-control travel on flyweight assembly dimension a = mm

Speed regulation: At 1135-1150 min⁻¹

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever ② Test oil temp. 40°C (104°F)		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min 1	cm³/-1000 strokes 2	rev/min 3	rev/min 4	cm³/-1000 strokes 5	rev/min 6	Control rod travel cm³/1000 strokes / mm 7
LDA 1100	0,9 bar 158,0-160,0 (155,0-163,0)	-	LDA 500	0 bar 111,0-113,0 (108,0-116,0)	100	240,0-280,0

Checking values in brackets

11.82

B21

D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing / increasing pressure – in bar gauge pressure

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel – diminution / difference mm (1)
PE8P..LS3113 +..PA646	0,55	0,90 0 0,48	11,5-11,7 12,0-12,1 9,7- 9,8 10,9-11,1

Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ② and Governors

WPP 001/4 DAF 8,3 1 2

1. Edition

En

PE 6 P 100 A 720 RS 373-1 RQ 250/1200 PA 464 R

supersedes -

company: DAF

engine: DHU 825
169 kW (230 PS)

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,5-2,6 (2,45-2,65) mm (from BDC) RW 9,0 - 12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	12,3±0,1	12,8-13,0	0,3 (0,6)			
250	7,2-7,4	0,8-1,2	0,3 (0,5)			

Adjust the fuel delivery from each outlet according to the values in [ ].

B. Governor Settings

Checking of slider PRG check ①		Full-load speed regulation Setting point		Test specifications ④		Idle speed regulation Setting point		Test specifications ⑤		Torque control ③	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
700	15,6-16,4	700	16,0	11,3 4,0 1450	1245-1260 1320-1350 0-1,0	250	7,3	100 250 470-510	min. 8,4 7,2-7,4 =2,0	1000 700	12,3-12,4 12,3-12,5

Torque-control travel on flyweight assembly dimension a = - mm

Speed regulation: At 1245-1260 min⁻¹

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) ②		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min 1	cm³/-1000 strokes 2	rev/min 3	rev/min 4	cm³/-1000 strokes 5	rev/min 6	Control rod travel cm³/1000 strokes / mm 7
LDA 1000	0,7 bar 127,5-129,5 (125,5-131,5)	-	LDA 500	0 bar 89,5-92,5 (87,5-94,5)	100	195,0-215,0 =19,5-21,0 mm RW

Checking values in brackets

11.82

D. Adjustment Test for Manifold Pressure Compensator

Test at n = 600 rev/min decreasing / increasing pressure – in bar gauge pressure

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel - diminution / difference mm (1)
PE 6 P..RS 373-1 + RQ ..PA 464 R	0,34	0,70 0 0,30	12,0-12,1 12,3-12,4 11,2-11,3 11,5-11,7

Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps and Governors (1)

WPP 001/4 VOL 10,0 01
1. Edition
En

PE 6 P 110 A 320 RS 3080 RQV 250-1025 PA 589

supersedes
company Volvo
engine TD 100 GA

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 3,5-3,6 (3,45-3,65) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	2,0+0,1	16,2-16,4	0,4 (0,8)			
250	9,7-9,9	1,6- 2,0	0,3 (0,6)			

Adjust the fuel delivery from each outlet according to the values in [ ]

B. Governor Settings

Upper rated speed: Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min (1a) (2a) 3	Intermediate rated speed: Degree of deflection of control lever 4	rev/min 5	Control rod travel mm (4) 6	Lower rated speed: Degree of deflection of control lever 7	rev/min 8	Control rod travel mm (3) 9	Sliding sleeve travel (1): rev/min 10	mm 11
max.	1080	15,2-17,8	-	-	-	ca. 8	190	min 5,6	200	0,7-0,9
							250	4,0-4,2	475	3,9-4,5
ca. 63	11,0	1065-1075							660	
	4,0	1120-1150					305-365 = 2,0		bis	6,4-6,6
									745	
	1250	0 - 1,0							1025	7,5
						(3a)				

Torque control travel a = _ mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) (2): rev/min 1	cm³/1000 strokes 2	Rotational-speed limitation (2b) intermediate speed (4a): rev/min 3	Fuel delivery characteristics high idle speed (5a) (5b): rev/min 4	cm³/1000 strokes 5	Starting fuel delivery idle switching point (6): rev/min 6	cm³/1000 strokes 7	Torque-control travel (5): rev/min 8	Control rod travel mm 9
LDA	0,7 bar	1065-1075*	LDA	0 bar	100	170,0-200,0	-	-
700	162,0-164,0		700	120,0-124,0		= 20,0-21,0		
	(159,0-167,0)			(117,0-127,0)		mm RW		

Checking values in brackets

* 1 mm less control rod travel than col. 2

12.82

C1

BOSCH Geschäftsbereich KH Kundendienst Kfz-Ausrüstung
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C1

D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing / increasing pressure – in bar gauge pressure

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel - diminution difference mm (1)
PE6P..RS 3080 + RQV..PA589	0,44	0,75 0 0,25	11,4-11,6 12,0-12,1 9,7- 9,9 10,2-10,3

Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

C2

En 22

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 VOL 10,0 K

2. Edition

En

Testoil-ISO 4113

PE 6 P 110 A 320 RS 389 RQV 250-1100 PA 459 R

supersedes 10.79

company Volvo

engine TD 100C (189,0kW-257PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 3,00-3,10 (2,95-3,15) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	12,4-12,5	13, 10 - 13,30	0,4(0,8)			
250	4,7-4,8	1, 10 - 1,50	0,3(0,6)			

Adjust the fuel delivery from each outlet according to the values in [ ].

B. Governor Settings

Upper rated speed: Degree of deflection of control lever 1	Upper rated speed: rev/min Control rod travel mm 2	Upper rated speed: Control rod travel mm (1a) rev/min (2a) 3	Intermediate rated speed: Degree of deflection of control lever 4	Intermediate rated speed: rev/min 5	Intermediate rated speed: Control rod travel mm (4) 6	Lower rated speed: Degree of deflection of control lever 7	Lower rated speed: rev/min 8	Lower rated speed: Control rod travel mm (3) 9	Sliding sleeve travel (1): rev/min 10	Sliding sleeve travel (1): mm 11
max.	1170	15,2-17,8				ca. 9	100	min.6,5	200	0,5-0,7
							250	4,7-4,9	500	2,7-3,1
									800	4,9-5,2
ca.45	11,4	1140-1150							1100	7,7
	4,0	1230-1260					300-360 = 2,0			
	1350	0,3-1,0				(3a)				

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) (2): rev/min 1	cm³/1000 strokes 2	Rotational-speed limitation (2b) intermediate speed (4a): rev/min 3	Fuel delivery characteristics (5a) high idle speed (5b): rev/min 4	cm³/1000 strokes 5	Starting fuel delivery (6) idle switching point: rev/min 6	cm³/1000 strokes 7	Torque-control travel (5): rev/min 8	Control rod travel mm 9
LDA	0,5 bar							
700	131,0-133,0	1140-1150*	700	108,0 - 112,0	100	180,0-220,0		
	(128,0-136,0)			(105,0 - 115,0)				
					100-170	(80-190)		

Checking values in brackets

* 1 mm less control rod travel than col. 2

11.82

C3

BOSCH Geschäftsbereich KH Kundendienst, Kfz-Ausrüstung

C3

D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing / increasing pressure - in bar gauge pressure

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel - diminution / difference mm (1)
389 + 459R	0,36	0,50 0 0,23	12,2 - 12,3 12,4 - 12,5 11,2 - 11,3 11,5 - 11,7

Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

C4

n 04

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 VAU 5,4 a
1. Edition
En

PES 6 A 95 D 320 RS 2646 RQV 300-1300 AB 1163 R

supersedes

company Vauxhall
engine 330 T/C

Please note instructions on sheet 2.

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers.

A. Fuel Injection Pump Settings

Port closing at prestroke 2,5 - 2,6 (2,45-2,65) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
800	9,7-9,8	6,4 - 6,6	0,3(0,6)			
300	5,9-6,1	0,8 - 1,4	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in [ ].

B. Governor Settings

Upper rated speed: Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min ①a ②a 3	Intermediate rated speed: Degree of deflection of control lever 4	rev/min 5	Control rod travel mm ④ 6	Lower rated speed: Degree of deflection of control lever 7	rev/min 8	Control rod travel mm ③ 9	Sliding sleeve travel ① rev/min 10	mm 11
max.	1425	15,2-17,8	-	-	-	ca. 12	100	min. 7,4	250	0,4-0,7
ca.63	8,7	1340-1350					300	5,9-6,1	600	4,1-4,4
	4,0	1440-1470							950	5,6-5,7
	1550	0 - 1,0					305-400		1300	7,7
						③a				

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ② rev/min 1	cm³/1000 strokes 2	Rotational-speed limitation ②b intermediate speed ④a rev/min 3	Fuel delivery characteristics ⑤a high idle speed ⑤b rev/min 4	cm³/1000 strokes 5	Starting fuel delivery ⑥ Idle switching point rev/min 6	cm³/1000 strokes 7	Torque-control travel ⑤ rev/min 8	Control rod travel mm 9
800	63,5-65,5 (61,5-67,5)	1340-1350*	1200	71,5-74,5 (69,5-76,5)	100	86,5 - 96,5 19,5-21,0 mm RW	-	-
			500	52,0-55,0 (50,0-57,0)				

Checking values in brackets

* 1 mm less control rod travel than col. 2

9.82

Instructions on fitting and testing

1. Clamp the pump onto the test bench without the governor fitted.

2. Set the plunger lift to port closing.

3. Turn the camshaft until cylinder 1 is at port closing.

4. Fit the flyweight assembly onto the camshaft so that the fastening bolt of the flyweight assembly with the marking on the front points towards the index plate in the hole in the governor housing. Fit the governor ready.

5. In this position, a mark, coinciding with that on the front of the fastening bolt for the governor flyweight assembly, is drawn on the index plate.

Test Specifications Fuel Injection Pumps and Governors

40

WPP 001/4 PEN 7,0 b 1

1. Edition

En

PE 6 P 110 A 320 RS 260X RSV 250-1250 PO/374/2R

supersedes –

company Volvo-Penta

engine TAMD 70 D

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,8-2,9 (2,75-2,95) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm (2) 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque control valve) mm 6
1000	10,5+0,1	12,0-12,2	0,4(0,8)			
250	5,9-6,1	1,1- 1,5	0,3(0,6)			

Adjust the fuel delivery from each outlet according to the values in ☐

B. Governor Settings

(1) Upper rated speed rev/min: Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	Intermediate rated speed 4	5	6	(4) Control-lever deflection in degrees 7	Lower rated speed: rev/min 8	Control rod travel mm 9	(3) Torque control: rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	ca.19	250	5,5	-	-
	X = 5,75						100	min.20,0		
ca.49 (2a)	9,5	1290-1300					250	5,9-6,1		
	4,0	1340-1370					455-515	= 2,0		
	1450	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2b) Full-load stop, Test oil temp 40°C (104°F): rev/min 1	cm³/1000 strokes 2	(6) Rotational-speed limitat, Note changed to) rev/min 3	(3a) Fuel delivery charactenstics: rev/min 4	cm³/1000 strokes 5	Starting fuel delivery (5) Idle: rev/min 6	cm³/1000 strokes 7	(4a) Idle stop: rev/min 8	Control rod travel mm 9
LDA	1,1 bar	1290-1300*	LDA	0 bar	100	160,0-200,0	-	-
1000	120,0-122,0 (117,0-127,0)		700	85,0-88,0 (82,0-91,0)		=20,0-21,0 mm RW		

Checking values in brackets

* 1 mm less control rod travel than col 2

11.82

BOSCH Geschäftsbereich KH Kundendienst Kfz-Ausrüstung

C7

C7

D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing / increasing pressure – in bar gauge pressure

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel- diminution difference mm (1)
PE6P.. RS 260 X +..PO/374/2R	0,90	1,10 0 0,55	10,4 - 10,5 10,5 - 10,6 8,7 - 8,8 8,8 - 9,1

Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps (1A) and Governors

WPP 001/4 DEE 10,1 a
1. Edition
En

PES 6 P 110 A 720 RS 370 US-RSV 400-1050 P0/495

supersedes -
company John Deere
engine 6619 A
205 kW (279 PS)

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,75-2,85 (2,70-2,90) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm (2) 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1050	12,5+0,1	17,8-18,0	0,4 (0,8)			
400	6,0-6,1	1,3-1,9	0,4 (0,7)			

Adjust the fuel delivery from each outlet according to the values in ☐

B. Governor Settings

(1) Upper rated speed rev/min: Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	Intermediate rated speed 4	5	6	(4) Lower rated speed: Control-lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	(3) Torque control: rev/min 10	Control rod travel mm 11
loose	800 X =	0,3-1,0	-	-	-	ca.16	400	5,5	1050	12,5-12,6
							100	min.19,0	700	13,7-14,0
							400	5,9-6,1	500	9,3-9,5
ca.38,5 (2a)	11,5	1090-1100					570-630	= 2,0		
	4,0	1155-1185					650	max. 1,0		
	1280	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2b) Full-load stop, Test oil temp 40°C (104°F): rev/min 1	cm³/1000 strokes 2	(6) Rotational-speed limitat, Note changed to: rev/min 3	(3a) Fuel delivery characteristics: rev/min 4	cm³/1000 strokes 5	Starting fuel delivery Idle (5): rev/min 6	cm³/1000 strokes 7	(4a) Idle stop: rev/min 8	Control rod travel mm 9
LDA	1,2 bar	1090-1100*	LDA	1,2 bar	100	min.170,0	400	6,0
1050	178,0-180,0		700	202,0-208,0				
	(175,0-183,0)			(199,0-211,0)	400	13,0-19,0		
			LDA	0 bar				
			500	96,0-102,0				
				(93,0-105,0)				

Checking values in brackets

* 1 mm less control rod travel than col 2

11.82

BOSCH Geschäftsbereich KH Kundendienst Kfz-Ausrüstung

EJ

D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing / increasing pressure - in bar gauge pressure

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel - diminution difference mm (1)
PES6P..RS370 + US-RSV..PO/495	0,64	0,28	12,8 - 12,9 10,5 - 10,6

Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps and Governors ②

WPP 001/4 DAF 8,3 k
6. Edition
En

Testoil-ISO 4113

PE 6 A 95 D 410 RS 2525, Y, X RQ 225/1200 AB 1007 L

superseds 82
company DAF
engine DN 825 (Y.X)
DHR 825

Test the manifold-preeure compensator and cold-start according to Service Information. Specifications apply to test tubing 1 680 750 015. -

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (1,95-2,15) 2,00-2,10 RW9 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	12,6+0,1	10,8 - 11,0	0,3(0,6)			
225	5,7-5,9	0,7 - 0,9	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in [ ].

B. Governor Settings

Port closing difference between control-rod travel 9 and max. = 3,0-4,0°.

Checking of slider PRG check ①		Full-load speed regulation Setting point		Test specifications ④		Idle speed regulation Setting point		Test specifications ⑤		Torque control ③	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
650	19,2-20,8	650	20,0	11,6	1230-1245	225	5,8	100	min.7,2	-	-
VH =	max. 46°			4,0	1315-1345			225	5,7-5,9		
				1450	0 - 1,0			340-380	= 2,0		
								450	max. 1,0		

Torque-control travel on flyweight assembly dimension a = - mm Speed regulation at 1230-1245 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever ② Test oil temp. 40°C (104°F)		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min 1	cm³/-1000 strokes 2	rev/min 3	rev/min 4	cm³/-1000 strokes 5	rev/min 6	Control rod travel cm³/1000 strokes / mm 7
LDA	0,7 bar		LDA	0 bar	100	121,5-131,5 =
1000	106,5 - 108,5		600	77,5 - 80,5		19,5-21,0 mmRW
	(104,5 - 110,5)			(75,5 - 82,5)		
X			X			
1000	90,5 - 92,5	(12 mm RW	600	77,0 - 80,0		
Y			Y			
1000	99,0 - 101,0	(12,5 mm RW)	600	77,0 - 80,0		

Checking values in brackets

.82

C11

D. Adjustment Test for Manifold Pressure Compensator

Test at n = rev/min decreasing / increasing pressure - in bar gauge pressure

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel - diminution / difference mm (1)
PE 6 A ..RS 2525 + ..AB 1007 L	0,7	0,30 0,25 0	12,6 - 12,7 12,2 - 12,3 11,5 - 11,7 11,2 - 11,3

Notes

(1) when n rev/min and gauge pressure bar (maximum full-load control rod travel)

C12

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 DAF 8,3 k 1
3. Edition
En

Testoil-ISO 4113

PE 6 A 95 D 410 RS 2525, X, Y RSV 250-1200 A 5 B 2013 DL supersedes 10.81

company DAF
engine DN825 (X, Y)
DHP/DHTD 825

Test the manifold-preeure compensator and cold-start according to Service Information. Specifications apply to test tubing 1 680 750 015.

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (1,95-2,15) 2,00-2,10 RW 9 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	12,6+0,1	10,7 - 10,9	0,3(0,6)			
250	6,0-6,2	0,8 - 1,0	0,3(0,5)			
600	11,6+0,1	C, Sp. 4 u.5				

Adjust the fuel delivery from each outlet according to the values in [ ]

B. Governor Settings

Port closing difference between control-rod travel 9 and max. = 3,0-4,0°.

Upper rated speed: Degree of deflection of control lever 1	rev/min 2	Control rod travel mm 3	Intermediate rated speed: Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	(4) Lower rated speed: Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	(3) Torque control: rev/min 10	Control rod travel mm 11
loose	800 X =	0,3-1,0 4,25	-	-	-	ca.21	250	5,6	1000	12,6+0,1
									400	12,6+0,2
(5) ca.55	1230-1240=11,6 1330-1360=4,0 1490=0,3-1,7						250 595-655	6,0-6,2 = 2,0	300	12,8+0,4

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2) Full-load stop: Test oil temp. 40°C (104°F) rev/min 1	cm³/1000 strokes 2	(6) Rotational-speed limitat. Note changed to ... rev/min 3	(3a) Fuel delivery characteristics: rev/min 4	cm³/1000 strokes 5	Starting fuel delivery idle: rev/min 6	cm³/1000 strokes 7	(5a) Idle stop: rev/min 8	Control rod travel mm 9
LDA 1000	0,7 bar 106,5-108,5 (104,5-110,5)	1230-1240*	LDA 600	0 bar 82,5 - 85,5 (80,5 - 87,5)	100	19,0-21,0 mm RW	250	6,1
X 1000	90,5- 92,5	(12,0mmRW)	X 600	77,0 - 80,0				
Y 1000	99,0-101,0	(12,5mmRW)	Y 600	77,0 - 80,0				

Checking values in brackets

* 1 mm less control rod travel than col. 2

11.82

C13

BOSCH
Geschäftsbereich KH Kundendienst Kfz-Ausrüstung

D. Adjustment Test for Manifold Pressure Compensator

Test at n = rev/min decreasing / increasing pressure – in bar gauge pressure

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel diminution difference mm (1)
2525 + 2013 DL	0,7	0,27 0,23 0	12,6 - 12,7 12,2 - 12,3 11,5 - 11,8 11,2 - 11,3

Notes

(1) when n = rev/min and gauge pressure bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps and Governors (1)

WPP 001/4 VOL 10,0 m
5. Edition
En

Testoil-ISO 4113

PE 6 P 110 A 320 RS 273 RQV 250-1100PA 530
1 - 5 - 3 - 6 - 2 - 4 je 60° ± 0,5° (± 0,75°)

superseded 8.81
company: Volvo
engine. TD 100B

In the case of greater dispersion alter the delivery-valve spring pre-tension accordingly.

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (2,55-2,75) 2,60-2,70 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	10,0	14,8 - 15,0	0,4(0,8)			2,5±0,1 **
250	+0,1 5,1-5,3	0,8 - 1,2	0,3(0,7)			(max.2,2-2,9)

Adjust the fuel delivery from each outlet according to the values in ☐

B. Governor Settings

Upper rated speed: Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min (1a) (2a) 3	Intermediate rated speed: Degree of deflection of control lever 4	rev/min 5	Control rod travel mm (4) 6	Lower rated speed: Degree of deflection of control lever 7	rev/min 8	Control rod travel mm (3) 9	Sliding sleeve travel (1): rev/min 10	mm 11
max.	1100	15,2-17,8				ca.10	100	min.6,7	250	1,1
ca. 40	9,0	1140-1150					250	5,1-5,3	450	2,5-2,8
	4,0	1225-1255						305-365=2,0	1150	7,2
	1350	0 - 1,0				(3a)				

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) (2): rev/min 1	cm³/1000 strokes 2	Rotational-speed limitation (2b) intermediate speed (4a): rev/min 3	Fuel delivery characteristics high idle speed (5a) (5b): rev/min 4	cm³/1000 strokes 5	Starting fuel delivery (6) idle switching point: rev/min 6	cm³/1000 strokes 7	Torque-control travel (5): rev/min 8	Control rod travel mm 9
LDA	0,8 bar		LDA	0 bar				
700	148,0-150,0	1140-1150*	700	112,5-115,5	100	160 - 180		
	(145,0-153,0)			(109,5-118,5)				

Checking values in brackets

* 1 mm less control rod travel than col. 2

11.82

C15

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D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing / increasing pressure – in bar gauge pressure

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel diminution / difference mm (1)
273 + 530	0,8 bar	0,4 bar 0,25 bar 0	10,0 - 10,1 9,5 - 9,7 8,8 - 8,9 8,4 - 8,5

Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

C16

C15

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 FIA 13,8 m
4. Edition
En

Testoil-ISO 4113

PE 8 P 120 A 920/5 LS 3804 RQV 300-950 PA 475 R

supersedes 81
company Fiat
engine 8285.22

1 - 8 - 4 - 3 - 6 - 5 - 7 - 2
0 -45 -90 -135-180-225-270-315 ± 0,5°(±0,75°)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (3,45-3,65) 3,50-3,60 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
950	11,1+0,1	20,7 - 21,1	0,5(0,9)			
300	4,9-5,1	1,5 - 2,1	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in [ ].

B. Governor Settings

Upper rated speed: Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min (1a) (2a) 3	Intermediate rated speed: Degree of deflection of control lever 4	rev/min 5	Control rod travel mm (4) 6	Lower rated speed: Degree of deflection of control lever 7	rev/min 8	Control rod travel mm (3) 9	Sliding sleeve travel (1): rev/min 10	mm 11
max.	950	15,2-17,8	-	-	-	ca.11 (3a)	100	min.7,5	300	2,0-2,1
							300	5,9-6,1	400	3,1-3,5
ca. 64	10,1	990-1000					300-390=2,0		1000	8,3
	4,0	1075-1105								
	1250	0 - 1,0								

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) (2): rev/min 1	cm³/1000 strokes 2	Rotational-speed limitation intermediate speed (2b) (4a): rev/min 3	Fuel delivery characteristics high idle speed (5a) (5b): rev/min 4	cm³/1000 strokes 5	Starting fuel delivery idle switching point (6): rev/min 6	cm³/1000 strokes 7	Torque-control travel (5): rev/min 8	Control rod travel mm 9
LDA 950	0,7 bar 207,0-211,0 (204,0-214,0)	990-1000*	LDA 950	0 bar 142,0-146,0 (139,0-149,0)	100	19,5-21 mm Electromagnet 24V		

Checking values in brackets

* 1 mm less control rod travel than col. 2

11.82

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D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing / increasing / XXXXXX pressure – in bar gauge pressure

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel-diminution difference mm (1)
.. LS 3804 + RQV..PA 475 R	0,7	0,35 0,28 0	11,1 - 11,2 10,4 - 10,5 9,0 - 9,3 8,3 - 8,4

Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

C18

Fn C43

Test Specifications Fuel Injection Pumps ② and Governors

WPP 001/4 KHD 6,1 f
2. Edition
En

Testoil-ISO 4113

PES 6 A 85 D 410 RS2572 RQ 300/1325 AB1070DL
..410/3.. RQV 300-1325 AB1072DL

supersedes 4.79 K H D
company:
engine: BF 6 L 913
118 kW (160 PS)
2650 min⁻¹

Please note instructions on sheet 2.

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,20-2,30 (2,15-2,35) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1325	13,1 +0,1	8,8 - 8,9	0,3(0,45			
300	4,9-5,1	0,9 - 1,5	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in ☐.

B. Governor Settings

Checking of slider PRG check ①		Full-load speed regulation Setting point		Test specifications ④		Idle speed regulation Setting point		Test specifications ⑤		Torque control ③	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
855	19,2-20,8	855	20,0	12,1	1370-1385	300	6,0	100	min. 7,5	-	-
				4,0	1450-1480			300	5,9-6,1		
1350	Breakaway 0 - 1	VH ca.49						505-545=2,0			
1550								625	0 - 1		

Torque-control travel on flyweight assembly dimension a = 0 mm

Speed regulation: At 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) ②		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min 1	cm³/1000 strokes 2	rev/min 3	rev/min 4	cm³/1000 strokes 5	rev/min 6	Control rod travel cm³/1000 strokes / mm 7
LDA 1325	0,7 bar 87,5 - 88,5 (85,5 - 90,5)		LDA 850	0,7 bar 81,5 - 84,5 (79,5 - 86,5)	100	19-21 mm RW, *Electromagnet 24V
			LDA 500	0 bar 52,0 - 54,0 (50,0 - 56,0)		

./.

Checking values in brackets

9.82

B. Governor Settings

RQV..1072DL

Upper rated speed: Degree of deflection of control lever (1)	Upper rated speed: rev/min Control rod travel mm (2)	Upper rated speed: Control rod travel mm rev/min (1a) (2a)	Intermediate rated speed: Degree of deflection of control lever	Intermediate rated speed: rev/min	Intermediate rated speed: Control rod travel mm (4)	Lower rated speed: Degree of deflection of control lever	Lower rated speed: rev/min	Lower rated speed: Control rod travel mm (3)	Sliding sleeve travel (1): rev/min	Sliding sleeve travel (1): mm
1	2	3	4	5	6	7	8	9	10	11
max.	1325	15,2-17,8	-	-	-	ca.13	100	min.7,5	300	1,4-1,6
							300	5,9-6,1	900	4,2-4,4
							375-435	=2,0		
ca.47	12,1	1365-1375					530	0 - 1	1370	8,4
	4,0	1455-1485								
	1600	0 - 1,0				(3a)				

Torque control travel a = 0 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F) (2): rev/min	Full-load delivery: cm³/1000 strokes	Rotational-speed limitation (2b) intermediate speed (4a): rev/min	Fuel delivery characteristics high idle speed (5a) (5b): rev/min	Fuel delivery: cm³/1000 strokes	Starting fuel delivery idle switching point (6): rev/min	Starting fuel delivery: cm³/1000 strokes	Torque-control travel (5): rev/min	Torque-control travel: Control rod travel mm
1	2	3	4	5	6	7	8	9
LDA	0,7 bar		LDA	0,7 bar				
1325	87,5 - 88,5	1365-1375*	850	81,5 - 84,5	100	19-21 mm RW		
	(85,5 - 90,5)			(79,5 - 86,5)		Electromagnet 24V		
			LDA	0 bar				
			500	52,0 - 54,0				
				(50,0 - 56,0)				

Checking values in brackets

* 1 mm less control rod travel than col 2

Testoil-ISO 4113

D. Adjustment Test for Manifold Pressure Compensator

Test at n = rev/min decreasing/increasing pressure - in bar gauge pressure

Pump/governor	Setting: Gauge pressure = bar	Measurement: Gauge pressure = bar	Control rod travel diminution/difference mm
2572 + 1070D	0	- - -	9,7 - 9,8
		0,22	10,5 - 10,8
		0,32	12,2 - 12,3
		0,70	13,1 - 13,2
2572 + 1072D	0	- - -	9,7 - 9,8
		0,22	10,5 - 10,8
		0,32	12,2 - 12,3
		0,70	13,1 - 13,2

En

** Set full-load delivery at control lever and manifold-pressure compensator (LDA). Then turn LDA adjusting sleeve (for deliveryamount) 1/2 turn in the direction more control-rod travel.

C20

Test Specifications Fuel Injection Pumps (1A) and Governors

WPP 001/4 DAF 11,6k3
1. Edition

En

PE 6 P 110 A 320 RS 372-1 RSV 250-1100 P5/458 R
P5/458-1

supersedes –
company DAF
DKTD 1160
engine 191 kW (260 PS)

See service Information VDT-I-DAF 004

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testöl-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke 2,8-2,9 (2,75-2,95) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm (2) 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
850	12,0+0,1	13,6 - 13,8	0,4 (0,8)			
250	6,6-6,8	0,7 - 1,1	0,4 (0,7)			

Adjust the fuel delivery from each outlet according to the values in ☐

B. Governor Settings

(1) Upper rated speed rev/min: Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	Intermediate rated speed 4	5	6	(4) Lower rated speed: Control-lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	(3) Torque control: rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	ca. 21	250	6,2	400	12,2+0,1
	x = 4,25						250	6,6-6,8	300	12,4+0,5
ca. 51	11,0	1140-1150					640-700	= 2,0		
(2a)	4,0	1275-1305								
	1425	0,3 - 1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2b) Full-load stop, Test oil temp 40°C (104°F): rev/min 1	cm³/1000 strokes 2	(6) Rotational-speed limitat, Note changed to) rev/min 3	(3a) Fuel delivery characteristics: rev/min 4	cm³/1000 strokes 5	Starting fuel delivery (5) Idle: rev/min 6	cm³/1000 strokes 7	(4a) Idle stop: rev/min 8	Control rod travel mm 9
LDA 850	0,7 bar 136,0-138,0 (133,0-141,0)	1140-1150*	LDA 600	0 bar 126,0-129,0 (123,0-132,0)	100	245,0-285,0 = 19,5-21,0 mm RW	250	6,6-6,8

Checking values in brackets

* 1 mm less control rod travel than col 2

11.82

D. Adjustment Test for Manifold Pressure Compensator

Test at n = 600 rev/min decreasing / increasing pressure – in bar gauge pressure

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel- diminution / difference mm (1)
PE 6 P..RS 372-1 + .. P5/458 u. ..P5/458-1	0,30	0,70 0 0,26	11,8-11,9 12,0-12,1 11,4-11,5 11,5-11,7

Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps (1A) and Governors

WPP 001/4 DAF 11,6 k 4
1. Edition

En

PE 6 P 120 A 320 RS 372-1 RSV 250-1100 P5/458 R

supersedes –
company DAF
engine DKS 1160

See service Information VDT-I-DAF 004

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,8-2,9 (2,75-2,95) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm (2) 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre tensioning (torque-control valve) mm 6
850	10,9+0,1	19,1-19,5	0,5 (0,9)			
250	6,2-6,4	1,1-1,5	0,8 (1,2)			

Adjust the fuel delivery from each outlet according to the values in [ ]

B. Governor Settings

(1) Upper rated speed rev/min: Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	Intermediate rated speed 4	5	6	(4) Lower rated speed: Control-lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	(3) Torque control: rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	ca. 24	250	5,8	400	11,1+0,1
	X = 5,0						250	6,2-6,4	300	11,3+0,5
							620-680	= 2,0		
ca.54	9,9	1140-1150								
(2a)	4,0	1260-1290								
	425	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2b) Full-load stop, Test oil temp 40°C (104°F): rev/min 1	cm³/1000 strokes 2	(6) Rotational-speed limitat, Note changed to) rev/min 3	(3a) Fuel delivery charactenstics: rev/min 4	cm³/1000 strokes 5	Starting fuel delivery (5) Idle: rev/min 6	cm³/1000 strokes 7	(4a) Idle stop: rev/min 8	Control rod travel mm 9
LDA 850	0,7 bar 191,0-195,0 (188,0-198,0)	1140-1150*	LDA 600	0 bar 133,0-137,0 (130,0-140,0)	100	315,0-355,0 = 19,5-21,0 mm RW	250	6,2-6,4

Checking values in brackets

* 1 mm less control rod travel than col 2

11.82

BOSCH Geschäftsbereich KH Kundendienst Kfz-Ausrüstung

D. Adjustment Test for Manifold Pressure Compensator

Test at n = 600 rev/min decreasing / increasing pressure – in bar gauge pressure

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel- diminution / difference mm (1)
PE6P..RS372-1	0,36		10,6 - 10,7
+ ..P5/458R		0,70	10,9 - 11,0
		0	9,8 - 9,9
		0,28	10,0 - 10,2

Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Testoil-ISO 4113

PES 6 A 90 D 410 RS 2293 RSV 350-1300 A0B 783 L

Dimensions H = 22,5 mm

superseded 8.82

company: Daimler-Benz

engine: OM 352 A
110 kW (150 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15-2,25 (2,10-2,30) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1300	11,0+0,1	7,0 - 7,1	0,3(0,45)			
350	6,9-7,1	0,7 - 1,3	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in [ ].

B. Governor Settings

Upper rated speed: Degree of deflection of control lever 1	rev/min 2	Control rod travel mm 3	Intermediate rated speed: Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	(4) Lower rated speed: Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	(3) Torque control: rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	ca.25	350	7,0	1300	11,0+0,1
	X =	3,5					100	min.19,0	500	11,6+0,1
ca. 65							350	7,4-7,6	800	11,4+0,2
(5)	10,0	1340-1350					570-630	= 2,0		
	4,0	1435-1465								
	1550	0,3- 1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2) Full-load stop, Test oil temp. 40°C (104°F): rev/min 1	cm³/1000 strokes 2	(6) Rotational-speed limitat. Note: changed to ... rev/min 3	(3a) Fuel delivery characteristics: rev/min 4	cm³/1000 strokes 5	Starting fuel delivery Idle: rev/min 6	cm³/1000 strokes 7	(5a) Idle stop: rev/min 8	Control rod travel mm 9
LDA	0,7 bar	1340-1350*	LDA	0,7 bar	100	14,5-14,9	-	-
1300	70,0-71,0		500	60,0-63,0		mm RW		
	(68,0-73,0)			(58,0-65,0)				
800	65,5-68,5		LDA	0 bar				
	(63,5-70,5)		500	54,0-56,0				
				(52,0-58,0)				

Checking values in brackets

* 1 mm less control rod travel than col 2

D1

11.82

BOSCH

Geschäftsbereich KH Kundendienst Kfz-Ausrüstung

D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing / increasing pressure - in bar gauge pressure

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel - diminution difference mm (1)
PES6A.. RS 2293 .. AOB 783 L	0,38	0,7	11,4 - 11,5 11,6 - 11,7
		0	11,0 - 11,1
		0,33	11,1 - 11,3

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Testoil-ISO 4113

Testing the hydraulic start-locking device

Locking at 0,4 - 0,5 bar
Unlocking at 0,2 - 0,3 bar

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 DAF 8,3 L
7. Edition
En

Testoil-ISO 4113

PE 6 P 100 A 720 RS 373 RQ 250/1200 PA 464 R
EP/RSV 250-1200 PO/447R

supersedes 11.81
company DAF
engine DHU 825 (169kW-230PS)

See service Information VDT-I-DAF 004
Start-of-delivery test without, Start-of-delivery test with Robo diaphragm.

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,50-2,60 (2,45-2,65) mm (from BDC) Zyl. 6

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery m.464R cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	12,3-12,4	12,8 - 13,0	0,3(0,6)	12,3-12,4	12,8 - 13,0	
250	7,2-7,4	0,8 - 1,2	0,3(0,5)	7,2-7,4	0,8 - 1,2	

Adjust the fuel delivery from each outlet according to the values in [ ].

B. Governor Settings

RQ.. 464 R

Checking of slider PRG check (1)		Full-load speed regulation Setting point		Full-load speed regulation Test specifications (4)		Idle speed regulation Setting point		Idle speed regulation Test specifications (5)		Torque control (3)	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
700	15,6-16,4	700	16,0	11,3 4,0 1450	1245-1260 1320-1350 0 - 1,0	250	7,3	100 250 470-510	min. 8,4 7,2-7,4 = 2,0	1000 700	12,3-12,4 12,3-12,5

Torque-control travel on flyweight assembly dimension a = mm Speed regulation At 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever (2) Test oil temp. 40°C (104°F)		Control rod stop (3a)	Fuel delivery characteristics (3b)		Starting fuel delivery Idle speed (6)	
rev/min 1	cm³/-1000 strokes 2	rev/min 3	rev/min 4	cm³/-1000 strokes 5	rev/min 6	Control rod travel mm / cm³/1000 strokes 7
LDA	0,7 bar		LDA	0 bar	100	195,0-215,0
1000	127,5 - 129,5 (125,5 - 131,5)		500	89,5 - 92,5 (87,5 - 94,5)		

./.

Checking values in brackets

11.82

B. Governor Settings

RSV....447 R

(1) Upper rated speed rev/min			Intermediate rated speed			(4) Lower rated speed			(3) Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800 0,3 - 1,0 X = 4,5					ca.23	250	6,8	400	12,5-12,6
							250	7,2-7,4	300	12,7-13,2
ca.50 (2a)	11,3 1240-1250 4,0 1350-1380 1500 0,3 - 1,7						560-620	= 2,0		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2b) Full-load stop Test oil temp. 40°C (104°F)		(6) Rotational-speed limitat Note. changed to ...)	(3a) Fuel delivery characteristics		Starting fuel delivery Idle (5)		(4a) Idle stop	
rev/min	cm³/1000 strokes	rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
LDA	0,7 bar		LDA	0 bar	100	195,0-215,0 = 19,5 - 21,0 mm RW		
1000	127,5 - 129,5 (125,5 - 131,5)	12040-1250*	500	89,5 - 92,5 (87,5 - 94,5)				

Checking values in brackets

* 1 mm less control rod travel than col. 2

Testoil-ISO 4113

D. Adjustment Test for Manifold Pressure Compensator

Test at n = rev/min decreasing / increasing pressure – in bar gauge pressure

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel- diminution difference mm (1)
373 + 464 R	0,7		12,3-12,4
n = 600		0	11,2-11,3
		0,34	12,0-12,1
		0,30	11,5-11,7
373 + 447 R	0,7		12,3-12,4
n = 600		0,15	11,5-11,7
		0,22	12,0-12,1
		0	11,2-11,3

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

En

D4

Testoil-ISO 4113

PE6P120A320RS372 RQ250/1100PA 417 R

supersedes 10.80
company DAF
engine DKS 1160

1 - 5 - 3 - 6 - 2 - 4 ± 0,50°
0 -60-120-180-240-300 (0,75)

See service Information VDT-I-DAF 004

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,80-2,90 (2,75-2,95) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
850	10,9-11,0	19,1 -19,5	0,4(0,8)			
250	6,2-6,4	1,1 - 1,5	0,4(0,7)			

Adjust the fuel delivery from each outlet according to the values in ☐.

B. Governor Settings

Checking of slider PRG check ① rev/min 1	Control rod travel mm 2	Full-load speed regulation Setting point rev/min 3	Control rod travel mm 4	Test specifications ④ Control rod travel mm 5	rev/min 6	Idle speed regulation Setting point rev/min 7	Control rod travel mm 8	Test specifications ⑤ rev/min 9	Control rod travel mm 10	Torque control ③ rev/min 11	Control rod travel mm 12
700	15,6-16,4	700	16,0	9,9	1145-1160	250	6,3	100	min.7,4	850	10,9-11,0
				4,0	1210-1240			250	6,2-6,4	1100	10,8-11,0
				1350	0 - 1,0			445 - 485	=2,0		

Torque-control travel on flyweight assembly dimension a = mm

Speed regulation: At 1145-1160 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever ② Test oil temp 40°C (104°F) rev/min 1	cm³/-1000 strokes 2	Control rod stop ③a rev/min 3	Fuel delivery characteristics ③b rev/min 4	cm³/-1000 strokes 5	Starting fuel delivery Idle speed ⑥ rev/min 6	Control rod travel cm³/1000 strokes / mm 7
LDA	0,7 bar		600	133,0 - 137,0 (130,0 - 140,0)	100	315,0 - 355,0 = 19,5-21,0 mm RW
850	191,0 - 195,0 (188,0 - 198,0)				250	6,3 mm RW

Checking values in brackets

11.82

D. Adjustment Test for Manifold Pressure Compensator

Test at n = 600 rev/min decreasing / increasing pressure – in bar gauge pressure

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel- diminution difference mm (1)
372 + 417R	0,7	0 0,30 0,26	10, 9- 11,0 9,8- 9,9 10,6- 10,7 10,0- 10,2

Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps and Governors

① WPP 001/4 FIA 13,8a1

3. Edition

En

Testoil-ISO 4113

PE 6 P 120A720 RS 167 RQV 225-1100 PA 177 R
337 R
478 R

supersedes 1.80
company: Fiat
8210.02.422
engine: 221A

Testing with T nozzles and fuel lines 8 x 2 x 1000 according to ..W 400/305

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,00-2,10 (1,95-2,15) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	11,1-11,2	19,3 - 19,7	0,5(0,9)	11,4-11,5	20,1 - 20,5	n=1100
225	7,5-7,6	1,7 - 2,3	0,8(1,2)	7,5-7,7	1,7 - 2,3	n=225

Adjust the fuel delivery from each outlet according to the values in [ ].

B. Governor Settings

RQV...177R

Upper rated speed: Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm (1a) rev/min (2a) 3	Intermediate rated speed: Degree of deflection of control lever 4	rev/min 5	Control rod travel mm (4) 6	Lower rated speed: Degree of deflection of control lever 7	rev/min 8	Control rod travel mm (3) 9	Sliding sleeve travel (1) rev/min 10	mm 11
ca.68	1100	15,2-17,8	-	-	-	ca.10	100	mind.7,5	300	1,2-2,0
	1350	0 - 1,0					225	5,9-6,1	1100	8,2
ca. 60	10,1	1140-1150					460-520=2,0			
	4,0	1200-1230								
						(3a)				

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) (2): rev/min 1	cm³/1000 strokes 2	Rotational-speed limitation (2b) intermediate speed (4a): rev/min 3	Fuel delivery characteristics (5a) high idle speed (5b): rev/min 4	cm³/1000 strokes 5	Starting fuel delivery (6) Idle switching point: rev/min 6	cm³/1000 strokes 7	Torque-control (5) travel: rev/min 8	Control rod travel mm 9
1100	193,0 - 197,0 (190,0 - 200,0)	1140-1150*			100	min. 16,0 mm RW		

Checking values in brackets

* 1 mm less control rod travel than col. 2

8.82

BOSCH Geschäftsbereich KH Kundendienst, Kfz-Ausrüstung
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D7

B. Governor Settings

Upper rated speed				Intermediate rated speed			Lower rated speed			Sliding sleeve travel (1)	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min (2a)	(1a)	Degree of deflection of control lever	rev/min	Control rod travel mm (4)	Degree of deflection of control lever	rev/min	Control rod travel mm (3)	rev/min	mm
1	2	3		4	5	6	7	8	9	10	11
max.	1100	15,2-17,8					ca.11	100	min. 9,1	200	0,6-0,8
ca. 59	10,4	1140-1150						225	7,5-7,7	500	2,6-3,0
	4,0	1205-1235								800	4,7-5,0
	1350	0 - 1,0								1100	8,0
							295-410 (3a)				

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F) (2)		Rotational-speed limitation intermediate speed (2b) (4a)	Fuel delivery characteristics high idle speed (5a) (5b)		Starting fuel delivery idle switching point (6)		Torque-control travel (5)	
rev/min	cm^3/1000 strokes	rev/min	rev/min	cm^3/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
1100	201,0-205,0 (198,0-208,0)	1140-1150*			100	19,5-21,0 Electromagnet 24V		

Checking values in brackets

* 1 mm less control rod travel than col 2

Testoil-ISO 4113

B. Governor Settings

RQV...478R*

Upper rated speed				Intermediate rated speed			Lower rated speed			Sliding sleeve travel (1)	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min (2a)	(1a)	Degree of deflection of control lever	rev/min	Control rod travel mm (4)	Degree of deflection of control lever	rev/min	Control rod travel mm (3)	rev/min	mm
1	2	3		4	5	6	7	8	9	10	11
ca.68	1100	15,2-17,8					ca.11	100	mind.8,5	225	0,8
	1350	0 - 1,0						225	7,5-7,7	410	2,4-2,6
ca.62	10,4	1140-1150						590-660 =2,0		1150	8,6
	4,0	1205-1235									
							(3a)				

Torque control travel a = mm

Control switch must light up at n = 1215-1225

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F) (2)		Rotational-speed limitation intermediate speed (2b) (4a)	Fuel delivery characteristics high idle speed (5a) (5b)		Starting fuel delivery idle switching point (6)		Torque-control travel (5)	
rev/min	cm^3/1000 strokes	rev/min	rev/min	cm^3/1000 strokes	rev/min		rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
1100	202,0-205,0 (199,0-208,0)	1140-1150*			100	19,5-21,0		
					*	Electromagnet 24V Control switch		
						n=1215-1225		

Checking values in brackets

* 1 mm less control rod travel than col 2

D8

En

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 RVI 12,0 d
1. Edition

En

PE 6 P 110 A 320 RS 335 RSV 300-1100 P1/815 DR

supersedes-
company RVI
engine MDS 635-40
169 kW (230 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke 1,3-1,4 (1,25-1,45) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm (2) 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	11,1+0,1	13,9-14,1	0,4(0,8)			
300	6,4-6,6	0,9- 1,7	0,4(0,8)			

Adjust the fuel delivery from each outlet according to the values in ☐

B. Governor Settings

(1) Upper rated speed rev/min: Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	Intermediate rated speed 4	5	6	(4) Lower rated speed: Control-lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	(3) Torque control: rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	ca.27	300	6,0	1100	11,1+0,1
	X= 4,75						300	6,4-6,6	900	12,2+0,1
ca.63							500-560	=2,0	650	12,7+0,1
(2a)	10,1	1140-1150								
	4,0	1185-1215								
	1300	0,3- 1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2b) Full-load stop, Test oil temp 40°C (104°F): rev/min 1	cm³/1000 strokes 2	(6) Rotational-speed limitat, Note: changed to) rev/min 3	(3a) Fuel delivery characteristics: rev/min 4	cm³/1000 strokes 5	Starting fuel delivery idle (5): rev/min 6	cm³/1000 strokes 7	(4a) Idle stop: rev/min 8	Control rod travel mm 9
LDA 1100	0,7 bar 139,0-141,0 (136,0-144,0)	1140-1150*	LDA 900	0,7 bar 159,5-163,5 (156,5-166,5)	100	190,0-210,0 bei 19,5-21,0 mm RW	-	-
LDA 650	0,7 bar 165,0-170,0 (162,0-173,0)		LDA	0,3 bar 152,5-162,5 (149,5-165,5)	LDA 350	0 bar 109,0-113,0		

Checking values in brackets

* 1 mm less control rod travel than col 2

10.82

D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing / increasing pressure – in bar gauge pressure

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel- diminution / difference mm (1)
PE6P..RS335 + ..P1/815DR	0,30	0,70 0 0,18	12,1-12,2 12,7-12,8 10,6-10,7 11,0-11,4

Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MB 5,7 x
6. Edition
En

PES 6 A 90 D 410 RS 2293

RQV 300-1400 AB 1140 L
RQV 300-1400 AB 1141 L
RQV 300-1400 AB 1142 L

superseded 8.82
company Daimler-Benz
engine OM 352 A
124,0 kW (169 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15-2,25 (2,10-2,30) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1375	11,3+0,1	7,5 - 7,6	0,3(0,45)			
300	7,6-7,8	0,9 - 1,5	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

.. AB 1140 L, .. AB 1141 L, .. AB 1142 L

Upper rated speed: Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min (1a) (2a) 3	Intermediate rated speed: Degree of deflection of control lever 4	rev/min 5	Control rod travel mm (4) 6	Lower rated speed: Degree of deflection of control lever 7	rev/min 8	Control rod travel mm (3) 9	Sliding sleeve travel (1): rev/min 10	mm 11
max.	1500	16,0-19,4	-	-	-	ca.15	100	min.9,2	250	0,9-1,1
							300	7,6-7,8	600	3,1-3,4
ca. 61	10,3	1435-1445							950	5,3-5,5
	4,0	1550-1580							1400	8,2
	1650	0 - 1,0								
						350-475 (3a)				

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) (2): rev/min 1	cm³/1000 strokes 2	Rotational-speed limitation (2b) intermediate speed (4a): rev/min 3	Fuel delivery characteristics (5a) high idle speed (5b): rev/min 4	cm³/1000 strokes 5	Starting fuel delivery (6) idle switching point: rev/min 6	cm³/1000 strokes 7	Torque-control travel (5): rev/min 8	Control rod travel mm 9
LDA 1375	0,7 bar 75,0-76,0 (73,0-78,0)	1435-1445 *	LDA 500	0 bar 56,0-58,0 (54,0-60,0)	100	14,3-14,7 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

11.82

BOSCH Geschäftsbereich KH Kundendienst Kfz-Ausrüstung

D/1 *

D. Adjustment Test for Manifold Pressure Compensator

Test at n = 1375 rev/min decreasing / increasing pressure - in bar gauge pressure

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel - diminution difference mm (1)
PES6A..RS2293 ..AB1140L + ..AB1141L ..AB1142L	0,7	0 0,28	11,3 - 11,4 11,0 - 11,1 11,1 - 11,2

Notes

(1) when n = rev/mn and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MB 5,7 n 5
3. Edition
En

Testoil-ISO 4113

PES 6 A 90 D 410 RS 2520 RQV 300 - 1425 AB 982 DL

supersedes 79
company Daimler Benz
engine OM 352 A
127 kW (172 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,80-1,90 (1,75-1,95) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1400	11,5+0,1	7,9 - 8,0	0,3(0,45)			
300	7,5-7,7	0,9 - 1,5	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in ☐

B. Governor Settings

Upper rated speed: Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 1a 2a 3	Intermediate rated speed: Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 4 6	Lower rated speed: Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 3 9	Sliding sleeve travel 1: rev/min 10	mm 11
max.	1425	16,0-19,4	-	-	-	ca.10	100	min.7,4	400	1,4-2,2
	10,5	1440-1450					300	5,8-6,0	1425	8,1
	4,0	1560-1590					570-630	=2,0		
	1700	0 - 1,0					800	0 - 1		
						350-500 3a				

Torque control travel a = 0,5 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F) 2: rev/min 1	cm³/1000 strokes 2	Rotational-speed limitation intermediate speed 2b 4a: rev/min 3	Fuel delivery characteristics high idle speed 5a 5b: rev/min 4	cm³/1000 strokes 5	Starting fuel delivery idle switching point 6: rev/min 6	cm³/1000 strokes 7	Torque-control travel 0,1 5: rev/min 8	Control rod travel mm 9
LDA	0,7 bar		LDA	0,7 bar				
1400	79,0 - 80,0	1440-1450*	600	76,0 - 78,0	100	14,0-14,6	1400	11,5
	(77,0 - 82,0)			(74,0 - 80,0)		mm RW	1200	11,8
800	82,0 - 84,0		LDA	0 bar			1000	12,1
	(80,0 - 86,0)		500	62,0 - 65,0			600	12,6
				(60,0 - 67,0)				./.

Checking values in brackets

* 1 mm less control rod travel than col 2

11.82

D13

BOSCH Geschäftsbereich KH Kundendienst Kfz-Ausrüstung
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D. Adjustment Test for Manifold Pressure Compensator

Test at n = 800 rev/min decreasing / increasing XXXXXXX pressure - in bar gauge pressure

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod XXXXXXX diminution / difference XXXXXXXXX mm (1) XXX
2520 + 982 DL		0,65	12,5 - 12,6
		0,17	12,2 - 12,3
	0,14		11,7 - 11,9
		0	11,5 - 11,6

Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

D14

En

Test Specifications Fuel Injection Pumps and Governors

Testoil-ISO 4113

En

PES 6 P 110 A 720 LS375 RQV 250-1100 PA373DR (1)
250-1100 PA334 R (2)

supersedes 7.78
company M A N
engine D2566 MTF/MTE
(1-2:206kW - 280PS)

6 - 2 - 4 - 1 - 5 - 3 ±0,50
0 - 60-120-180-240-300° (±0,75)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 3,00-3,10 (2,95-3,15) mm (from BDC) Zyl. 6

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	12,1	14,70-14,90	0,4(0,8)			
250	+0,1 6,9-7,1	1,00- 1,60	0,4(0,7)			

Adjust the fuel delivery from each outlet according to the values in ☐

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel Torque-control travel	
Degree of deflection of control lever 1	rev/min 2	Control rod travel mm 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1100	15,2-17,8	-	-	-	ca.16	100 250 520-580=2,0 600	min.8,5 6,8-7,0 0 - 1	250 500 800 1150	0,9-1,1 3,8-4,0 5,4-5,5 8,3
ca.68	11,1 4,0 1400	1140-1150 1280-1310 0 - 1,0								

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational-speed limitation	Fuel delivery characteristics		Starting fuel delivery Idle switching point		Intermediate rotational speed Torque-control travel	
rev/min 1	cm³/1000 strokes 2	rev/min 3	rev/min 4	cm³/1000 strokes 5	rev/min 6	cm³/1000 strokes 7	rev/min 8	mm +0,1
(1) 1100	LDA 0,7 bar 147,0-149,0 (144,0-152,0)	1140-1150*	LDA 500	0,2 bar 123,0-127,0 (120,0-130,0)	100	225-245	1100	12,1
					250	7 mm RW	850	12,4
700	157,0-161,0 (154,0-164,0)		LDA 500	0 bar 111,0-113,0 (108,0-116,0)	100-170 (80-190)		700	12,8

Checking values in brackets

* 1 mm less control rod travel than col 2

./.

B. Governor Settings

(2)

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel (1)	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min (1a) (2a)	Degree of deflection of control lever	rev/min	Control rod travel mm (4)	Degree of deflection of control lever	rev/min	Control rod travel mm (3)	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
ca.50	1100 1350	15,2-17,8 0 - 1	-	-	-	ca.11	100 250 350-410 500	min.8,5 6,8-7,0 =2,0 0 - 1	250 800 1100	0,6-1,2 4,9-5,3 8,6
ca.47	11,1 4,0	1140-1150 1200-1230				(3a)				

Torque control travel a = - mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F) (2)		Rotational-speed limitation intermediate speed (2b) (4a)	Fuel delivery characteristics high idle speed (5a) (5b)		Starting fuel delivery idle switching point (6)		Torque-control travel (5)	
rev/min	cm^3/1000 strokes	rev/min	rev/min	cm^3/1000 strokes	rev/min	cm^3/1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
(2) 1100	147,0-149,0 (144,0-152,0)	1140-1150 *			100	225-245		

Checking values in brackets

* 1 mm less control rod travel than col 2

Testoil-ISO 4113

D. Adjustment Test for Manifold Pressure Compensator

Test at n = rev/min decreasing / increasing pressure – in bar gauge pressure

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel - diminution difference mm
375 + 373DR	0,68		12,8-12,9
		0,32	12,3-12,4
		0,20	11,5-11,7
		0	10,9-11,0

En

D16

Test Specifications Fuel Injection Pumps and Governors ②

WPP 001/4 DAF 11,6 u 1
1. Edition
En

PE 6 P 110 A 720 RS 441 RQ 225/1200 PA 617

supersedes
company DAF
engine DHS 825

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,8-2,9 (2,75-2,95) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	12,2+0,1	13,7-13,9	0,4 (0,8)			
225	5,2-5,4	0,7-1,1	0,4 (0,7)			

Adjust the fuel delivery from each outlet according to the values in [ ].

B. Governor Settings

Checking of slider PRG check ①		Full-load speed regulation Setting point		Test specifications ④		Idle speed regulation Setting point		Test specifications ⑤		Torque control ③	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
650	15,6-16,4	650	16,0	11,2 4,0 1450	1235-1250 1310-1340 0 - 1,0	225	5,3	100 225 360-400	min. 6,3 5,2 - 5,4 = 2,0	1000 1190	12,2-12,3 12,1-12,3

Torque-control travel on flyweight assembly dimension a = mm

Speed regulation: At 1235-1250 min^{-1}

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever ② Test oil temp. 40°C (104°F)		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min 1	cm³/-1000 strokes 2	rev/min 3	rev/min 4	cm³/-1000 strokes 5	rev/min 6	Control rod travel cm³/1000 strokes / mm 7
LDA 1000	0,7 bar 136,5-138,5 (133,5-141,5)	-	LDA 600	0 bar 91,5-94,5 (88,5-97,5)	100	245,0-285,0 = 19,5-21,0 mm RW

Checking values in brackets

11.82

D. Adjustment Test for Manifold Pressure Compensator

Test at n = 600 rev/min decreasing / increasing pressure – in bar gauge pressure

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel - diminution / difference mm (1)
PE6P..RS441 + RQ..PA617	0,36		11,7 - 11,8
		0,70	12,2 - 12,3
		0	10,4 - 10,5
		0,30	11,0 - 11,2

Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full load control rod travel)

Test Specifications Fuel Injection Pumps ② and Governors

WPP 001/4 DAF 11,6 i 8
1. Edition
En

PE 6 P 110 A 320 RS 372-1 RQ 250/1100 PA 417-1

supersedes
company: DAF
engine: DKTD 1160
191 kW (260 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,8-2,9 (2,75-2,95) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
850	12,0+0,1	13,7-13,9	0,4(0,8)			
250	6,6-6,8	0,6-1,0	0,4(0,7)			

Adjust the fuel delivery from each outlet according to the values in ☐.

B. Governor Settings

Checking of slider PRG check ①		Full-load speed regulation Setting point		Test specifications ④		Idle speed regulation Setting point		Test specifications ⑤		Torque control ③	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
700	15,7-16,4	700	16,0	11,0 4,0 1350	1145-1160 1220-1250 0 - 1,0	250	6,7	100 250 460-500	min.7,8 6,6-6,8 = 2,0	850 1100	12,0-12,1 11,9-12,1

Torque-control travel on flyweight assembly dimension a = mm

Speed regulation: At 1145-1160 min⁻¹

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever ② Test oil temp. 40°C (104°F)		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min 1	cm³/1000 strokes 2	rev/min 3	rev/min 4	cm³/1000 strokes 5	rev/min 6	cm³/1000 strokes / Control rod travel mm 7
LDA 850	0,7 bar 137,0-139,0 (134,0-142,0)	-	LDA 600	0 bar 127,5-130,5 (124,5-133,5)	100	245,0-285,0 = 19,5-21,0 mm RW

Checking values in brackets

11.82

D19

D. Adjustment Test for Manifold Pressure Compensator

Test at n = 600 rev/min decreasing / increasing pressure – in bar gauge pressure

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel · diminution / difference mm (1)
PE6P..RS372-1 + ..PA417-1	0,30		11,8 - 11,9
		0,70	12,0 - 12,1
		0	11,4 - 11,5
		0,26	11,5 - 11,7

Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Testoil-ISO 4113

PE 6 P 110 A 320 RS 372 — RQ 250/1100 PA 417R

supersedes 8.81
company DAF
engine: DKTD 1160
191 kW (260 PS)

1 - 5 - 3 - 6 - 2 - 4

0-60-120-180-240-300° ± 0,5° (± 0,75°)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (2,75-2,95) 2,80-2,90 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
850	12,0	13,7 - 13,9	0,4 (0,8)			
250	+0,1 6,6-6,8	0,7 - 1,1	0,4(0,7)			

Adjust the fuel delivery from each outlet according to the values in [ ].

B. Governor Settings

Checking of slider PRG check ①		Full-load speed regulation				Idle speed regulation				Torque control ③	
		Setting point		Test specifications ④		Setting point		Test specifications ⑤			
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
700	15,6-16,4	700	16,0	11,0	1145-1160	250	6,7	100	min. 7,8	850	12,0-12,1
				4,0	1220-1250			250	6,6-6,8	1100	11,9-12,1
				1350	0 - 1,0			450-510=2,0			
								600	1,0		

Torque-control travel on flyweight assembly dimension a = mm Speed regulation: At 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever ② Test oil temp. 40°C (104°F)		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min 1	cm³/-1000 strokes 2	rev/min 3	rev/min 4	cm³/-1000 strokes 5	rev/min 6	Control rod travel cm³/1000 strokes / mm 7
LDA	0,7 bar		LDA	o bar		
850	137,0 - 139,0 (134,0 - 142,0)		600	127,5 - 130,5 (124,5 - 133,5)	100	19,5-21,0 mm RW 245,0-285,0

Checking values in brackets

11.82

D21

D. Adjustment Test for Manifold Pressure Compensator

Test at n = 600 rev/min decreasing / increasing pressure – in bar gauge pressure

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel xxxxxxx diminution / xxxxxxx difference mm (1)
..RS 372 + ..PA 417R	0,30	0,70	12,0-12,1
			11,8-11,9
		0,26	11,5-11,7
		0	11,4-11,5

Notes.

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps and Governors

40

WPP 001/4DAF 8,3 L1

5. Edition

En

Testoil-ISO 4113

PE6P100A720RS373 RQ250/1200PA418R

supersedes 8.81

company DAF

engine: DHU 825

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,50-2,60 (2,45-2,65) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	12,3-12,4	12,8 - 13,0	0,3(0,6)			
250	7,2-7,4	0,8 - 1,2	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in [ ].

B. Governor Settings

Checking of slider PRG check (1)		Full-load speed regulation Setting point		Test specifications (4)		Idle speed regulation Setting point		Test specifications (5)		Torque control (3)	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
650	15,6-16,4	650	16,0	11,3	1245-1260	250	6,0	100	min. 8,4	1000	12,3+0,1
				4,0	1320-1350			250	7,2-7,4	650	12,3+0,2
				1450	0 - 1,0			470-510 =2,0			

Torque-control travel on flyweight assembly dimension a = - mm

Speed regulation: At 1245-1260 min⁻¹

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever (2) Test oil temp. 40°C (104°F)		Control rod stop (3a)	Fuel delivery characteristics (3b)		Starting fuel delivery Idle speed (6)	
rev/min 1	cm³/-1000 strokes 2	rev/min 3	rev/min 4	cm³/-1000 strokes 5	rev/min 6	Control rod travel cm³/1000 strokes / mm 7
LDA	0,7 bar		LDA	0 bar	100	195,0-215,0
1000	127,5 - 129,5 (125,5 - 131,5)		500	89,5 - 92,5 (87,5 - 94,5)		19,5-21,0 mm RW

Checking values in brackets

11.82

D23

BOSCH Geschäftsbereich KH Kundendienst, Kfz-Ausrüstung

D23

D. Adjustment Test for Manifold Pressure Compensator

Test at n = 600 rev/min ~~decreasing~~ ~~increasing~~ pressure – in bar gauge pressure

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel- diminution difference mm (1)
..RS 373 + ..PA 418R	0,34		12,0-12,1
		0,70	12,3-12,4
		0	11,2-11,3
		0,30	11,5-11,7

Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps and Governors (1A)

WPP 001/4 CAS 8,3 a

1. Edition

En

PES 6 A 100 D 420 LS 3024 US-EP/RSV 375-1100 A2B 2062 DR

supersedes

company Case

engine A-504 BDT 210 PS

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,0-2,1 (1,95-2,15) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm (2) 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	11,6+0,1	14,0-14,2	0,3 (0,6)			
375	6,5 - 6,6	1,8-2,4	0,3 (0,7)			

Adjust the fuel delivery from each outlet according to the values in ☐

B. Governor Settings

(1) Upper rated speed rev/min: Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	Intermediate rated speed 4	5	6	(4) Control-lever deflection in degrees 7	Lower rated speed rev/min 8	Control rod travel mm 9	(3) Torque control rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	ca.23	375	6,0	1100	11,6+0,1
	x =						100	min. 19,0	700	12,0+0,3
							375	6,4 - 6,6	600	12,1+0,1
ca. 50 (2a)	10,6	1140-1150					410-470	= 2,0		
	4,0	1205-1235					800	max. 1,0		
	1260	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2b) Full-load stop, Test oil temp 40°C (104°F): rev/min 1	cm³/1000 strokes 2	(6) Rotational-speed limitat, Note changed to) rev/min 3	(3a) Fuel delivery characteristics: rev/min 4	cm³/1000 strokes 5	Starting fuel delivery (5) Idle: rev/min 6	cm³/1000 strokes 7	(4a) Idle stop: rev/min 8	Control rod travel mm 9
1100	139,5-141,5 (137,5-143,5)	1140-1150*	700	142,0-148,0 (140,0-150,0)	100	130,0-150,0	375	6,5
			600	max. 158,0 (max. 150,0)				

Checking values in brackets

* 1 mm less control rod travel than col 2

E1

51

Test Specifications Fuel Injection Pumps (1A) and Governors

WPP 001/4 DAF 11,6 t 1
3. Edition
En

Testoil-ISO 4113

PE 6 P 110 A 320 RS 385 RSV 250-750 P7/479 supersedes 2.82
company DAF
engine DK, DKT, DKS, DKA 1160

1 - 5 - 3 - 6 - 2 - 4
0 -60 -120-180-240-300° ± 0,5° (±0,75°)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (2,75-2,95) 2,80-2,90 mm (from BDC) RW 9,0 - 12,0

Rotational speed rev/min 1	Control rod travel mm (2) 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
750	12,6+0,1	16,9 - 17,1	0,4(0,8)			
250	6,8-7,0	2,6 - 3,4	0,4(0,7)			

Adjust the fuel delivery from each outlet according to the values in ☐

B. Governor Settings

(1) Upper rated speed rev/min: Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	Intermediate rated speed 4 5 6	(4) Lower rated speed: Control-lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	(3) Torque control: rev/min 10	Control rod travel mm 11
loose	700 0,3-1,0			ca.18	250	6,9		
	X = 3,25				250	6,8-7,0		
ca. 44 (2a)	790-795 = 11,6				245-305=2,0mm			
	810-825 = 4,0							
	950 =0,3 - 1,7							

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2b) Full-load stop, Test oil temp. 40°C (104°F): rev/min 1	cm³/1000 strokes 2	(6) Rotational-speed limitat, Note changed to ( ): rev/min 3	(3a) Fuel delivery characteristics: rev/min 4	cm³/1000 strokes 5	Starting fuel delivery / Idle (5): rev/min 6	cm³/1000 strokes 7	(4a) Idle stop: rev/min 8	Control rod travel mm 9
750	169,0 - 171,0 (166,0 - 174,0)	790- 795 *			100	19,5-21,0 mm RW		
					250	26,0-34,0		

Checking values in brackets

* 1 mm less control rod travel than col 2

11.82

E2

Test Specifications Fuel Injection Pumps and Governors (1A)

40

WPP 001/4 VAL 4,4 a

1. Edition

En

PES 4 A 95 D 320 RS 2654 RSV 325-1050 A 2 B 2178 R

supersedes -

company Valmet

engine 411 DS 8

1-2-4-3 je 90° ± 0,5° (± 0,75°)

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,5-2,6 (2,45-2,65) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm (2) 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1050	10,6+0,1	8,5-8,7	0,3 (0,6)			
325	7,2-7,4	1,2-1,5	0,3 (0,5)			

Adjust the fuel delivery from each outlet according to the values in ☐

B. Governor Settings

(1) Upper rated speed rev/min: Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	Intermediate rated speed 4	5	6	(4) Control-lever deflection in degrees 7	Lower rated speed: rev/min 8	Control rod travel mm 9	(3) Torque control: rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	ca. 31	325	6,3	1050	10,6-10,7
	x =	6,5					100	min.19,0	500	11,2-11,3
ca.53 (2a)	9,6	1090-1100					325	6,7-6,9	900	10,8-11,1
	4,0	1225-1255					640-700	=2,0		
	1390	0,3-1,7					775	max. 1,0		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2b) Full-load stop, Test oil temp 40°C (104°F): rev/min 1	cm³/1000 strokes 2	(6) Rotational-speed limitat, Note changed to) rev/min 3	(3a) Fuel delivery characteristics: rev/min 4	cm³/1000 strokes 5	Starting fuel delivery Idle (5): rev/min 6	cm³/1000 strokes 7	(4a) Idle stop: rev/min 8	Control rod travel mm 9
1050	84,5-86,5 (82,5-88,5)	1090-1100*	500	80,5-83,5 (78,5-85,5)	100	156,5-166,5 = 19,5 - 21,0 mm RW	-	-
			750	89,5-91,5 (87,5-93,5)				

Checking values in brackets

* 1 mm less control rod travel than col 2

BOSCH Geschäftsbereich KH Kundendienst Kfz-Ausrüstung

11.82

E3

E3

Test Specifications Fuel Injection Pumps ② and Governors

WPP 001/4 DAF 11,6L
3. Edition
En

Testoil-ISO 4113

PE 6 P 100 A 320 RS 384 RQ 225/1000PA 442 R

supersedes 6.81
company: DAF
engine: DKDL 1160 (125kW-170PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 3,20-3,30 (3,15-3,35) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
600	11,0-11,1	9,8 - 10,0	0,3(0,6)			
250	7,1-7,3	0,9 - 1,3	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in ☐.

B. Governor Settings

Checking of slider PRG check ① rev/min 1	Control rod travel mm 2	Full-load speed regulation Setting point rev/min 3	Control rod travel mm 4	Test specifications ④ Control rod travel mm 5	rev/min 6	Idle speed regulation Setting point rev/min 7	Control rod travel mm 8	Test specifications ⑤ rev/min 9	Control rod travel mm 10	Torque control ③ rev/min 11	Control rod travel mm 12
550	15,6-16,4	550	16,0	9,1	1055-1070	250	7,2	100	mind.8,7	1000	10,1-10,3
				4,0	1080-1110			250	7,1-7,3	805	10,2-10,5
1200	0,3-1,0							330-370=2,0		710	10,7-10,9
										600	11,0-11,1

Torque-control travel on flyweight assembly dimension a = mm

Speed regulation: At 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever ② Test oil temp. 40°C (104°F) rev/min 1	cm³/-1000 strokes 2	Control rod stop ③a rev/min 3	Fuel delivery characteristics ③b rev/min 4	cm³/-1000 strokes 5	Starting fuel delivery Idle speed ⑥ rev/min 6	cm³/1000 strokes / Control rod travel mm 7
600	98,0 - 100,0 (96,0 - 102,0)		1000	93,0 - 97,0 (91,0 - 99,0)	100	170,0 - 210,0 19,5 - 21,0 mm RW
					250	9,0 - 13,0

Checking values in brackets

11.82

E4

Test Specifications Fuel Injection Pumps and Governors

② WPP 001/4 MAN 11.1 g 2
2. Edition:
En

Testoil-ISO 4113

PES 6 A 95 D 410 LS2485 RQ 250/1050 AB965DL

superseded 10.77
company M A N D 2566 MR/MFR
engine: 172 kW (234 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,50-1,60 (1,45-1,65) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1050	11,7+0,1	12,3 - 12,5	0,3 (0,6)			
250	6,5-6,7	1,3 - 1,9	0,3 (0,5)			

Adjust the fuel delivery from each outlet according to the values in ☐.

B. Governor Settings

Checking of slider PRG check ① Control rod travel		Full-load speed regulation Setting point		Test specifications ④		Idle speed regulation Setting point		Test specifications ⑤		Torque control ③	
rev/min 1	mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
600	15,6-16,4	600	16,0	10,7	1095-1110	250	6,6	100	min. 8,0	-	-
				4,0	1145-1175			250	6,5-6,7		
				1250	0 - 1,0			365-500	425=2,0 0-1		

Torque-control travel on flyweight assembly dimension a = 0 mm

Speed regulation: At 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) ②		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min 1	cm³/-1000 strokes 2	rev/min 3	rev/min 4	cm³/-1000 strokes 5	rev/min 6	Control rod travel cm³/1000 strokes / mm 7
1050	123,0-125,0 (121,0-127,0)		500	111,5-115,5 (109,5-117,5)	100	120,0 - 130,0 = 13,7-14,3 mm RW
					250	6,0 mm RW

Checking values in brackets

11.82

E5

Test Specifications Fuel Injection Pumps and Governors

(1A)

WPP 001/4 CAS 5,5 a

1. Edition

En

PES 4 A 95 D 420 LS 3023 US-RSV 375-1100 A 2 B 2078 R

supersedes –

company CASE

engine A-336 BDT

90 kW (122 PS)

Inlet pressure 1.5 bar
overflow valve 9 681 273 009

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke 2,0-2,1 (1,95-2,15) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm (2) 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	11,1+0,1	11,9-12,1	0,3(0,6)			
375	5,6-5,7	1,6-2,1	0,3(0,7)			

Adjust the fuel delivery from each outlet according to the values in ☐

B. Governor Settings

(1) Upper rated speed rev/min: Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	Intermediate rated speed 4	5	6	(4) Control-lever deflection in degrees 7	Lower rated speed: rev/min 8	Control rod travel mm 9	(3) Torque control: rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	ca. 21	375	5,1	1100	11,1-11,2
	X =						100	min. 19,0	750	11,4-11,7
							375	5,5-5,7	600	11,7-11,8
ca. 45	10,1	1140-1150					460-520	=2,0		
(2a)	4,0	1165-1195					600	max. 1,0		
	1250	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2b) Full-load stop, Test oil temp 40°C (104°F): rev/min 1	cm³/1000 strokes 2	(6) Rotational-speed limitat Note changed to .) rev/min 3	(3a) Fuel delivery characteristics: rev/min 4	cm³/1000 strokes 5	Starting fuel delivery Idle (5): rev/min 6	cm³/1000 strokes 7	(4a) Idle stop: rev/min 8	Control rod travel mm 9
1100	119,0-121,0 (117,0-123,0)	1140-1150*	750	123,0-129,0 (121,0-131,0)	100	138,0-144,0 = ca. 17,0 mm RW	-	-
			600	max. 125,5 (max. 127,5)				

Checking values in brackets

* 1 mm less control rod travel than col 2

11.82

BOSCH Geschäftsbereich KH Kundendienst Kfz-Ausrüstung

E6

E6

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 STE 9,7a
En 1. Edition

PE6P110A721RS 3102 RQV 250-1200 PA 257-1

supersedes
company: Steyr
engine: WD 615.84
180 kW (245 PS)

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,8-2,9 (2,75-2,95) mm (from BDC)= RW 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1200	12,3+0,1	13,7-13,9	0,4(0,8			
250	7,2-7,4	1,3-1,7	0,4(0,7)			

Adjust the fuel delivery from each outlet according to the values in ☐.

B. Governor Settings

Upper rated speed: Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm (1a) rev/min (2a) 3	Intermediate rated speed: Degree of deflection of control lever 4	rev/min 5	Control rod travel mm (4) 6	Lower rated speed: Degree of deflection of control lever 7	rev/min 8	Control rod travel mm (3) 9	Sliding sleeve travel (1): rev/min 10	mm 11
max.	1250	15,2-17,8	-	-	-	ca.11	100	min.8,8	200	0,5-0,7
							250	7,2-7,4	530	3,5-3,7
ca. 46	11,3	1240-1250					350-410	=2,0	870	5,1-5,5
	4,0	1300-1330							1200	7,9
	1450	0 -1,0				(3a)				

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) (2): rev/min 1	cm³/1000 strokes 2	Rotational-speed limitation (2b) intermediate speed (4a): rev/min 3	Fuel delivery characteristics high idle speed (5a) (5b): rev/min 4	cm³/1000 strokes 5	Starting fuel delivery (6) idle switching point: rev/min 6	cm³/1000 strokes 7	Torque-control travel (5): rev/min 8	Control rod travel mm 9
LDA	0,7 bar	1240-1250*	LDA	0,7 bar	100	125,0-145,0	1200	12,3+0,1
1200	137,0-139,0		700	144,0-148,0			500	12,7+0,1
	(134,0-142,0)			(141,0-151,0)			1060	12,3+0,3
			LDA	0 bar			880	12,5+0,3
			700	96,0-100,0				
				(93,0-103,0)				

Checking values in brackets

* 1 mm less control rod travel than col. 2

11.82

E7

BOSCH Geschäftsbereich KH. Kundendienst. Kfz-Ausrüstung

E7

D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing / increasing pressure - in bar gauge pressure

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel - diminution difference mm (1)
PE6P..RS3102 + RQV..PA 527-1	0,37	0,70 0 0,23	11,8 - 11,9 12,7 - 12,8 10,2 - 10,3 10,7 - 10,8

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 STE 9,7 b
1. Edition
En

PE6P110A721 RS 3101 RQV 250-1200 PA 413

supersedes -
company: Steyr
engine: WD 615.67
206 kW (280 PS)

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,8-2,9 (2,75-2,95) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1200	12,0+0,1	16,2-16,4	0,4(0,8)			
250	5,8-6,0	1,2- 1,8	0,4(0,7)			

Adjust the fuel delivery from each outlet according to the values in [ ].

B. Governor Settings

Upper rated speed: Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min (1a) (2a) 3	Intermediate rated speed: Degree of deflection of control lever 4	rev/min 5	Control rod travel mm (4) 6	Lower rated speed: Degree of deflection of control lever 7	rev/min 8	Control rod travel mm (3) 9	Sliding sleeve travel (1): rev/min 10	mm 11
max.	1290	15,2-17,8	-	-	-	ca.11 (3a)	100 250	min.7,5 5,8-6,0	200 530 870	0,6-0,8 3,2-3,8 5,4-5,8
ca.45	11,0 4,0 1450	1240-1250 1335-1365 0 - 1,0						360-420 = 2,0	1200	7,7

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) (2): rev/min 1	cm³/1000 strokes 2	Rotational-speed limitation (2b) intermediate speed (4a): rev/min 3	Fuel delivery characteristics (5a) high idle speed (5b): rev/min 4	cm³/1000 strokes 5	Starting fuel delivery (6) Idle switching point: rev/min 6	cm³/1000 strokes 7	Torque-control (5) travel: rev/min 8	Control rod travel mm 9
LDA 1200	0,7 bar 162,0-164,0 (159,0-167,0)	1240-1250*	LDA 700	0,7 bar 165,0-169,0 (163,0-171,0)	100	240,0-270,0	1200 500 880 1060	12,0+0,1 12,5+0,1 12,2+0,1 12,0+0,2
			LDA 700	0 bar 120,0-125,0 (118,0-127,0)				

Checking values in brackets

* 1 mm less control rod travel than col. 2

11.82

BOSCH
Geschäftsbereich KH. Kundendienst. Kfz-Ausrüstung
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E9

D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing / increasing pressure – in bar gauge pressure

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel diminution / difference mm (1)
PE6P.. RS 3101 + RQV.. PA 413	0,53	0,70 0 0,38	11,5 - 11,6 12,0 - 12,1 9,8 - 9,9 10,2 - 10,7

Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps and Governors

40

(1A)

WPP 001/4 KHD 6,1 e
5. Edition
En

Testoil-ISO 4113

PES 6 A 95 D 410 RS 2471 RSV 325-1150 A 8 B 707 DL

supersedes 9.82
company KHD
engine BF 6L 913C
132 kW
2300 min^{-1}

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (1,85 - 2,05) / 1,90 - 2,00 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm (2) 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	11,8	10,6 - 10,8	0,3 (0,6)			
325	+ 0,1 7,1-7,3	0,9 - 1,5	0,3 (0,5)			

Adjust the fuel delivery from each outlet according to the values in ☐

B. Governor Settings

(1) Upper rated speed rev/min			Intermediate rated speed			(4) Lower rated speed			(3) Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control-lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800 0,3-1,0 x = 4,7					ca. 21	325	6,7	1150	11,8-11,9
							100	min. 19	500	11,8-12,0
ca. 55 (2a)	1190-1200=10,8 1235-1265= 4,0 1400=0,3-1,7						325 590-650	7,1-7,3 = 2,0		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2b) Full-load stop Test oil temp. 40°C (104°F)		(6) Rotational-speed limitat Note: changed to .)	(3a) Fuel delivery characteristics		Starting fuel delivery (5) Idle		(4a) Idle stop	
rev/min 1	cm³/1000 strokes 2	rev/min 3	rev/min 4	cm³/1000 strokes 5	rev/min 6	cm³/1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 1150	0,5 bar 105,0 - 107,0 (103,0 - 109,0)	1190-1200*	LDA 850	0,5 bar 97,5 - 101,5 (95,5 - 103,5)	100	125 - 135	325	5,5

Checking values in brackets

* 1 mm less control rod travel than col 2

11.82

BOSCH Geschäftsbereich KH Kundendienst Kfz-Ausrüstung

E11

E11

D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing / increasing pressure – in bar gauge pressure

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel- diminution difference mm (1)
PES 6 A..RS 2471 +..A 8 B 707 DL	0,07	0,50 0,28 0	10,1-10,3 11,8-11,9 11,5-11,6 9,9-10,1

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps and Governors (1A)

WPP 001/4 MWM 6,2 c 1

1. Edition

En

PES 6 A 90 D 320/3 RS 2464-1 RSV 325-1200 AOB 2181 R

supersedes –

company MWM

engine TD 226-6
107 kW (145 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15-2,25 (2,10-2,30) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm (2) 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1200	10,6+0,1	7,5-7,6	0,3 (0,45)			
325	7,4-7,6	0,5-1,5	0,25(0,4)			

Adjust the fuel delivery from each outlet according to the values in [ ]

B. Governor Settings

(1) Upper rated speed rev/min: Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	Intermediate rated speed 4	5	6	(4) Control-lever deflection in degrees 7	Lower rated speed: rev/min 8	Control rod travel mm 9	(3) Torque control: rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	ca. 20	325	7,0	1180	10,6-10,7
	x = 3,75						325	7,4-7,6	500	11,5-11,6
ca. 46 (2a)	9,6	1240-1250					520-580	=2,0	875	11,0-11,2
	4,0	1300-1330								
	1460	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2b) Full-load stop, Test oil temp 40°C (104°F): rev/min 1	cm³/1000 strokes 2	(6) Rotational-speed limitat Note: changed to .) rev/min 3	(3a) Fuel delivery characteristics: rev/min 4	cm³/1000 strokes 5	Starting fuel delivery (5) Idle: rev/min 6	cm³/1000 strokes 7	(4a) Idle stop: rev/min 8	Control rod travel mm 9
LDA 1200	0,7 bar 74,5-75,5 (72,5-77,5)	1240-1250*	LDA 500	0 bar 59,5-60,5 57,5-62,5)	100	113,0-123,0 = 19,5-21,5 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

BOSCH Geschäftsbereich KH Kundendienst Kfz-Ausrüstung

E13

D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing / increasing pressure – in bar gauge pressure

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel- diminution / difference mm (1)
PES 6 A..RS 2464-1 +..AOB 2181 R	0,14	0,70 0 0,13	11,3-11,4 11,5-11,6 11,0-11,1 11,1-11,3

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 SCA 11,0 m
2. Edition

En

PE 6 P 110 A 720 RS 3006 RQV 250-1100 PA 184 R (1)
.. PA 242 R (2)

supersedes
company Scania
engine DS 11

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 3,3-3,4 (3,25-3,45) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	12,0+0,1	13,3-14,1	0,6			2,5 ± 0,1 ** (max.2,2-2,9)
600	9,0-9,1	6,8-8,0				
	12,0+0,1	13,1-14,6				
	15,0+0,1	19,9-21,6				
200	9,0-9,1	4,4-5,4				

Adjust the fuel delivery from each outlet according to the values in [ ].

**In the case of greater dispersion alter the delivery-valve spring pre-tension accordingly

B. Governor Settings

RQV..PA 184 R (1)

Upper rated speed: Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min (1a) (2a) 3	Intermediate rated speed: Degree of deflection of control lever 4	rev/min 5	Control rod travel mm (4) 6	Lower rated speed: Degree of deflection of control lever 7	rev/min 8	Control rod travel mm (3) 9	Sliding sleeve travel (1) rev/min 10	mm 11
ca. 66	1150	16,0-19,0	-	-	-	ca.10	100	6,3-7,9	1170	8,3
	1440	0					250	4,8-6,4		
ca. 62	1100	15,0-17,4					400	2,5-3,8		
	1200	8,4-12,3					550	1,0-2,4		
	1300	1,0-6.4					680	0		
	1400	0				(3a)				

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) (2): rev/min 1	cm³/1000 strokes 2	Rotational-speed limitation (2b) intermediate speed (4a): rev/min 3	Fuel delivery characteristics (5a) high idle speed (5b): rev/min 4	cm³/1000 strokes 5	Starting fuel delivery (6) Idle switching point: rev/min 6	cm³/1000 strokes 7	Torque-control (5) travel: rev/min 8	Control rod travel mm 9
LDA 1100	0,7 bar 173,9-175,0 (171,0-177,0)	1135-1145*	LDA 600	0,7 bar 173,0-177,0 (171,0-179,0)	100	190,0-240,0	-	-
					225	10,0-12,0 Dispersion max. 2,0		
			LDA 500	0 bar 135,0-141,0 (133,0-143,0)	1200	29,0-34,0 Dispersionmax. 4,0		

Checking values in brackets

* 1 mm less control rod travel than col. 2

11.82

E15

BOSCH Geschäftsbereich KH Kundendienst, Kfz-Ausrüstung.

E15

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel (1)	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min (1a) (2a)	Degree of deflection of control lever	rev/min	Control rod travel mm (4)	Degree of deflection of control lever	rev/min	Control rod travel mm (3)	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
ca. 66	1120 1200 1300 1410	15,0-17,6 9,2-13,6 1,0-7,6 0	-	-	-	ca. 10 (3a)	150 250 400 500	6,5-8,0 3,6-6,1 1,1-2,4 0	1120	8,3

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F) (2)		Rotational-speed limitation intermediate speed (2b) (4a)	Fuel delivery characteristics high idle speed (5a) (5b)		Starting fuel delivery idle switching point (6)		Torque-control travel (5)	
rev/min	cm³/1000 strokes	rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
LDA 1100	0,7 bar 161,0-163,0 (159,0-165,0)	1135-1145*	LDA 600	0,7 bar 160,5-163,5 (158,5-165,5)	100 225	190,0-240,0 11,0-13,0		
			LDA 500	0 bar 133,0-137,0 (131,0-139,0	1200	Dispersion max. 2,0 29,0-34,0 Dispersion max. 4,0		

Checking values in brackets

* 1 mm less control rod travel than co: 2

D. Adjustment Test for Manifold Pressure Compensator

Test at n = rev/min decreasing / increasing pressure - in bar gauge pressure

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel- diminution / difference XXXXXXXX mm
PE 6 P..RS 3006 + RQV ..PA 184 R	0,43-0,46	0,20-0,24	0,1 1,3
PE 6 P..RS 3006 + RQV ..PA 242 R	0,40-0,42	0,20-0,24	0,1 1,1

En

E16

Test Specifications Fuel Injection Pumps and Governors

40

WPP 001/4 KHD 6,1h

4. Edition

En

Testoil-ISO 4113

PES 6 A 85 D 410 RS 2591 RS 325/1325 A0B 691 DL

supersedes 9.82

company: KHD

engine: BF 6 L 913 - BW
124 kW(169 PS)
bei 2650 min

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,50-2,60 (2,45-2,65) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1325	12,8-12,9	9,0 - 9,1	0,3(0,45)			
325	8,4-8,6	0,9 - 1,5	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in [ ]

B. Governor Settings

VH=Control lever Vertical position =40°
FH=Accelerator lever Horizontal position=40°

Upper rated speed: Degree of deflection of control lever 1	rev/min 2	Control rod travel mm 3	Intermediate rated speed: Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	(4) Lower rated speed: Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	(3) Torque control: rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0				FHca.2	325	8,5	325	12,8-12,9
						VHmax.	100	min.10,0	1000	12,8-12,9
VHva.53	1365-1375	=11,8					400-425	=6,0	850	12,9-13,1
(5) max.	1415-1445	= 4,0								
	1575	=0,3-1,7							500	12,9-13,1

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2) Full-load stop, Test oil temp. 40°C (104°F): rev/min 1	cm³/1000 strokes 2	(6) Rotational-speed limitat. Note. changed to ... rev/min 3	(3a) Fuel delivery characteristics: rev/min 4	cm³/1000 strokes 5	Starting fuel delivery Idle: rev/min 6	cm³/1000 strokes 7	(5a) Idle stop: rev/min 8	Control rod travel mm 9
LDA	0,7 bar		LDA	0,7 bar				
1325	90,5 - 91,5	1365-1375*	1000	85,0 - 88,0	100	104,0-114,0		
	(88,5 - 93,5)			(83,0 - 90,0)		= 17,8-18,2		
			LDA	0,7 bar		mm RW		
			350	83,5 - 86,5				
				(81,5 - 88,5)		Electromagnet 24V		
		LDA 0 bar	500	55,5 - 58,5				
				(53,5 - 60,5)				

Checking values in brackets

* 1 mm less control rod travel than col. 2

11.82

E17

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E17

D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing ~~increasing~~ pressure – in bar gauge pressure

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel- diminution difference mm (1)
2591 + 691 DL	0,7	0,430 0,160 0	12,9 - 13,1 12,7 - 12,8 12,1 - 12,3 11,5 - 11,7

Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 KHD 6,1 a 1
2. Edition

En

PES 6 A 85 D 410/3 RS 2415 RS 325/1325 A0B 691 DL
709 DL

supersedes 6.82
company: KHD
engine: BF6 L 913

Test RS governor according to WPP 001/4, KHD 1 c.

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke 1,9-2,0 (1,85-2,05) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1325	11,4+0,1	7,6 - 7,7	0,3(0,45			
325	8,2-8,4	1,4 - 2,0	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in [ ].

B. Governor Settings

Upper rated speed: Degree of deflection of control lever 1	Upper rated speed: rev/min 2	Upper rated speed: Control rod travel mm 3	Intermediate rated speed: Degree of deflection of control lever 4	Intermediate rated speed: rev/min 5	Intermediate rated speed: Control rod travel mm 6	(4) Lower rated speed: Degree of deflection of control lever 7	(4) Lower rated speed: rev/min 8	(4) Lower rated speed: Control rod travel mm 9	(3) Torque control: rev/min 10	(3) Torque control: Control rod travel mm 11
loose	800	0,3-1,0	-	-	-		325	6,5	1325	11,4+0,1
	X =	7,0							500	11,9+0,2
							100	min.16,0	1060	11,5+0,2
							325	6,4-6,6		
ca.68 (5)	10,4	1355-1365					500	3,4-4,0		
	4,0	1450-1480					1330-	1370=2,0		
	1600	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2) Full-load stop: Test oil temp. 40°C (104°F) rev/min 1	(2) Full-load stop: cm³/1000 strokes 2	(6) Rotational-speed limitat. Note: changed to ... rev/min 3	(3a) Fuel delivery characteristics: rev/min 4	(3a) Fuel delivery characteristics: cm³/1000 strokes 5	Starting fuel delivery Idle: rev/min 6	Starting fuel delivery Idle: cm³/1000 strokes 7	(5a) Idle stop: rev/min 8	(5a) Idle stop: Control rod travel mm 9
LDA 1325	0,7 bar 76,0-77,0 (74,0-79,0)	1355-1365*	LDA 500	0 bar 44,0-47,0 (42,0-49,0)	100	15,0-16,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

11.82

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E19

D. Adjustment Test for Manifold Pressure Compensator

Test at n = 800 rev/min decreasing / increasing pressure – in bar gauge pressure

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel - diminution difference mm (1)
PES 6 A..RS 2415 + ..AOB 691 DL + ..AOB 709 DL	0,27		11,0 - 11,3
		0,70	11,9 - 12,1
		0,37	11,6 - 11,7
		0	10,7 - 10,9

Notes.

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

PE 6 P 110 A 320 RS 407-1 RQ 275/1000 PA 641-1

supersedes
company DAF
engine DKCL

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,8-2,9 (2,75-2,95) mm (from BDC) RW 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
600	12,3+0,1	13,9-14,1	0,4(0,8)			
275	7,0-7,2	1,0-1,4	0,4(0,7)			

Adjust the fuel delivery from each outlet according to the values in ☐.

B. Governor Settings

Checking of slider PRG check ①		Full-load speed regulation Setting point		Test specifications ④		Idle speed regulation Setting point		Test specifications ⑤		Torque control ③	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
600	15,6-16,4	600	16,0	11,3 4,0 1300	1045-1060 1105-1135 0 - 1,0	275	7,1	100 275 345-	min. 8,6 7,0-7,2 385=2,0	600 1000 815 985	12,3+0,1 11,1+0,2 12,0+0,2 11,3+0,4

Torque-control travel on flyweight assembly dimension a = 0,6 mm

Speed regulation: At 1045-1060 min⁻¹

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) ②		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min 1	cm³/-1000 strokes 2	rev/min 3	rev/min 4	cm³/-1000 strokes 5	rev/min 6	Control rod travel cm³/1000 strokes / mm 7
LDA 600	0,5 bar 139,0-141,0 (136,0-144,0)	-	LDA 1000	0,5 bar 114,5-119,5 (111,5-122,5)	100	245,0-285,0 = 19,5-21,0 mm RW
			LDA 600	0 bar 136,5-139,5 (133,5-142,5)		

Checking values in brackets

12.82

E21

E21

D. Adjustment Test for Manifold Pressure Compensator

Test at n = 600 rev/min decreasing / increasing pressure – in bar gauge pressure

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel- diminution / difference mm (1)
PE 6 P.. RS 407-1 + RQ.. PA 641-1	0,28	0,50 0	12,2-12,3 12,3-12,4 12,1-12,3

Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 KHD 12,7 d

En 6. Edition

Testoil-50 +113

PE 8 MW 100/720 LS 1010
RQV 300-1150 MW 23
Komb. 0 403 548 002

superseded 9.82
company KHD
engine: BF 8 L 413 F
212 kW (288 PS)
= 2100 min
bzw. 206 kW
= 2300 min^{-1}
(Maxidyne)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 3,10-3,20 (3,05-3,25) mm (from BDC) RW 9,0 - 12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
750	12,2$^{+0,3}$	13,1 - 13,3	0,35(0,6)			
300	6,3-6,5	1,25- 1,65	0,35(0,55)			
500	9,9-10,0		0,55(0,7)			

Adjust the fuel delivery from each outlet according to the values in ☐.

B. Governor Settings

Upper rated speed: Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min (1a) (2a) 3	Intermediate rated speed: Degree of deflection of control lever 4	rev/min 5	Control rod travel mm (4) 6	Lower rated speed: Degree of deflection of control lever 7	rev/min 8	Control rod travel mm (3) 9	Sliding sleeve travel (1): rev/min 10	mm 11
max.	1180	15,2-17,8				ca. 18	100	min.7,8		
	1400	0 - 1,0					300	6,3-6,5		
ca. 63	9,2	1160-1170					430-490 = 2,0			
	4,0	1235-1265				(3a)				

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) (2): rev/min 1	cm³/1000 strokes 2	Rotational-speed limitation (2b) intermediate speed (4a): rev/min 3	Fuel delivery characteristics (5a) high idle speed (5b): rev/min 4	cm³/1000 strokes 5	Starting fuel delivery (8) idle switching point: rev/min 6	cm³/1000 strokes 7	Torque-control (5) travel: rev/min 8	Control rod travel mm 9
LDA 750	0,74 bar 131,0-133,0 (129,0-135,0)	1160 - 1170*	LDA 500	0 bar 87,5 - 89,5 (85,5 - 91,5)	100	136,5-146,5 (133,5-149,5)	750	12,2+0,1
							1050	11.2+0,3
					100-230 (80-250)		1150	10,2+0,3

Checking values in brackets

* 1 mm less control rod travel than col 2

11.82

E23

BOSCH Geschäftsbereich KH Kundendienst Kfz-Ausrüstung

E23

D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing / increasing pressure – in bar gauge pressure

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel- diminution difference mm (1)
LS 1010 + MW 23	0,16	0,5 0,74 0	10,3 - 10,5 11,8 - 11,9 12,2 - 12,3 9,9 - 10,0

Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 OMB 8.1 c1

1. Edition En

PES 6 MW 100/720 RS 1012 RQV 425-1100 MW 35
0 403 446 126
1 - 5 - 3 - 6 - 2 - 4
0 - 60 - 120 - 180 - 240 - 300 ± 0,50 (0,75)

supersedes
company OM-Brescia
engine 8365.25.522
112 KW (152 PS)

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,90 - 3,00 (2,85 - 3,05) mm (from BDC) RW 9,0 - 12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	10,2+0,1	8,15-8,35	0,35(0,6)			
425	5,8-6,0	1,05-1,45	0,35(0,55)			
700	11,1+0,1		0,5 (0,7)			
500	10,6+0,1		0,35(0,6)			

Adjust the fuel delivery from each outlet according to the values in ☐

B. Governor Settings

Upper rated speed: Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min (1a) (2a) 3	Intermediate rated speed: Degree of deflection of control lever 4	rev/min 5	Control rod travel mm (4) 6	Lower rated speed: Degree of deflection of control lever 7	rev/min 8	Control rod travel mm (3) 9	Sliding sleeve travel (1): rev/min 10	mm 11
max.	1100	15,2-17,8	-	-	-	ca. 14	425	5,8-6,0		
	1300	0 - 1,0					100	min.7,5		
ca. 48	9,2	1140-1150						470-530= 2,0		
	4,0	1185-1215				(3a)				

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) (2): rev/min 1	cm³/1000 strokes 2	Rotational-speed limitation (2b) intermediate speed (4a): rev/min 3	Fuel delivery characteristics high idle speed (5a) (5b): rev/min 4	cm³/1000 strokes 5	Starting fuel delivery idle switching point (6): rev/min 6	cm³/1000 strokes 7	Torque-control travel (5): rev/min 8	Control rod travel mm 9 +0,1
LDA	0,5 bar		LDA	0,5 bar			700	11,1
1100	81,5-83,5	1140-1150*	700	84,5 - 88,5	100	max. 19 RW		
	(79,5-85,5)			(82,5-90,5)		min. 160,0	1000	10,2
			LDA 500	0 bar				
				67,5 - 69,5				
				(65,5 - 71,5)		100-220 (80-240)		

Checking values in brackets

* 1 mm less control rod travel than col. 2

11.82

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D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing / increasing pressure – in bar gauge pressure

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel- diminution / difference mm (1)
RS 1012 + RQV.. MW 35	0,25	0,5 0	10,9 - 11,0 11,1 - 11,2 10,6 - 10,7

Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 VOL 10,0 o3
1. Edition
En

PE 6 P 110 A 320 RS 3080-1 RQV 250-1025 PA 589

supersedes –
company: Volvo
engine: TD 100 FA
220 kW (299 PS)

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 3,0 - 3,1 (2,45-3,15) mm (from BDC) = RW 9,0 - 12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	12,7+0,1	17,9 - 18,1	0,4(0,8)			
250	4,0-4,2	1,7 - 2,1	0,3(0,6)			

Adjust the fuel delivery from each outlet according to the values in [ ].

B. Governor Settings

Upper rated speed: Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min (1a) (2a) 3	Intermediate rated speed: Degree of deflection of control lever 4	rev/min 5	Control rod travel mm (4) 6	Lower rated speed: Degree of deflection of control lever 7	rev/min 8	Control rod travel mm (3) 9	Sliding sleeve travel (1): rev/min 10	mm 11
max.	1090	15,2-17,8	-	-	-	ca. 8	100	min.5,6	200	0,7-0,9
ca. 64	11,7	1085-1095					250	4,0-4,2	475	3,9-4,5
	4,0	1135-1165							660	
	1300	0 - 1,0						305-365 = 2,0	bis	6,4-6,6
									945	
						(3a)			1025	7,6

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) (2): rev/min 1	cm³/1000 strokes 2	Rotational-speed limitation (2b) intermediate speed (4a): rev/min 3	Fuel delivery characteristics (5a) high idle speed (5b): rev/min 4	cm³/1000 strokes 5	Starting fuel delivery (6) idle switching point: rev/min 6	cm³/1000 strokes 7	Torque-control travel (5): rev/min 8	Control rod travel mm 9
LDA	0,75 bar	1085-1095*	LDA	0 bar	100	150,0-200,0	-	-
700	179,0-181,0 (176,0-184,0)		1000	170,0-174,0 (167,0-177,0)		= 20,0-21,0 mm RW		
			LDA 700	0 bar 130,5-133,5 (127,5-136,5)				

Checking values in brackets

* 1 mm less control rod travel than col. 2

12.82

F3

BOSCH Geschäftsbereich KH Kundendienst, Kfz-Ausrüstung.

F3

D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing / increasing pressure – in bar gauge pressure

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel - diminution difference mm (1)
PE6P .. RS 3080-1 + RQV .. PA 589	0,42		12,0 - 12,1
		0,75	12,7 - 12,8
		0	9,9 - 10,0
		0,26	10,6 - 10,8

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 VOL 10,0 o2
1, Edition
En

PE 6 P 110 A 320 RS 3080-1 RQV 250-1100 PA 589

supersedes–
company: Volvo
engine: TD 100 F
220 kW (299 PS)

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 3,0 - 3,1 (2,95-3,15) mm (from BDC) = RW 9,0 - 12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	12,7+0,1	17,9 - 18,1	0,4(0,8)			2,5 ± 0,1
250	4,0-4,2	1,7 - 2,1	0,3(0,6)			(2,2 - 2,9)

Adjust the fuel delivery from each outlet according to the values in [ ].

B. Governor Settings

Upper rated speed: Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min (1a) (2a) 3	Intermediate rated speed: Degree of deflection of control lever 4	rev/min 5	Control rod travel mm (4) 6	Lower rated speed: Degree of deflection of control lever 7	rev/min 8	Control rod travel mm (3) 9	Sliding sleeve travel (1): rev/min 10	mm 11
max.	1180	15,2-17,8	-	-	-	ca. 8	100	min. 5,6	200	0,7-0,9
ca. 63	11,7	1160-1170					250	4,0-4,2	500	4,2-4,8
	4,0	1215-1245					305-365 = 2,0		600 bis 1040	6,4-6,6
	1350	0 - 1,0				(3a)			1100	7,6

Torque control travel s = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) (2): rev/min 1	cm³/1000 strokes 2	Rotational-speed limitation (2b) intermediate speed (4a): rev/min 3	Fuel delivery characteristics (5a) high idle speed (5b): rev/min 4	cm³/1000 strokes 5	Starting fuel delivery (6) idle switching point: rev/min 6	cm³/1000 strokes 7	Torque-control travel (5): rev/min 8	Control rod travel mm 9
LDA	0,75 bar	1160-1170*	LDA	0 bar	100	150,0-200,0	-	-
700	179,0-181,0 (176,0-184,0)		1000	170,0-174,0 (167,0-177,0)		= 20,0-21,0 mm RW		
			LDA 700	0 bar 130,5-133,5 (127,5-136,5)				

Checking values in brackets

* 1 mm less control rod travel than col 2

12.82

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D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing / increasing pressure – in bar gauge pressure

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel - diminution difference mm (1)
PE6P .. RS 3080-1 + RQV .. PA 589	0,42		12,0 - 12,1
		0,75	12,7 - 12,8
		0	9,9 - 10,0
		0,26	10,6 - 10,8

Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps and Governors

① WPP 001/4 KHD 12,7 c

4. Edition En

PE 8 MW 100/720 LS 1010
RQV 900-1250 MW 31
Komb. 0 403 548 003

supersedes 9.82
company: KHD
engine: BF 8 L 413 F
235 kW (320 PS)
2500 min

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 3,10-3,20 (3,05-3,25) mm (from BDC) RW 9,0 - 12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1250	12,2 -0,1	13,0 - 13,2	0,35(0,6)			
300	6,4-6,6	1,25- 1,65	0,35(0,55)			
850	12,7+0,1		0,5 (0,7)			
500	9,7+0,1		0,35(0,6)			

Adjust the fuel delivery from each outlet according to the values in ☐

B. Governor Settings

Upper rated speed: Degree of deflection of control lever 1	rev/mn Control rod travel mm 2	Control rod travel mm rev/min ⑬ ⑫ 3	Intermediate rated speed: Degree of deflection of control lever 4	rev/min 5	Control rod travel mm ④ 6	Lower rated speed: Degree of deflection of control lever 7	rev/min 8	Control rod travel mm ③ 9	Sliding sleeve travel ① rev/min 10	mm 11
max.	1250	15,2-17,8				ca. 15	100	min. 8,4		
	1500	0 - 1,0					300	6,8-6,9		
								670-730=2,0		
ca. 65	11,2	1290-1300								
	4,0	1375-1405				380-440 ⑬				

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ② rev/min 1	cm³/1000 strokes 2	Rotational-speed limitation ⑫ intermediate speed ⑭ rev/min 3	Fuel delivery characteristics ⑤ high idle speed ⑤ rev/min 4	cm³/1000 strokes 5	Starting fuel delivery ⑥ idle switching point rev/min 6	cm³/1000 strokes 7	Torque-control ⑤ travel rev/min 8	Control rod travel mm 9
LDA	0,9 bar		LDA	0,9 bar			850	12,7+0,1
1250	130,0-132,0	1290-1300*	850	130,5-134,5	100	136,5-146,5	950	12,4+0,2
	(128,0-134,0)			(128,5-136,5)		(133,5-149,5)	1200	12,2+0,1
			LDA	0 bar	300	12,5-16,5	1250	12,2+0,1
			500	84,5- 86,5		(9,0-18,0)		
				(82,5- 88,5)				

Checking values in brackets

* 1 mm less control rod travel than col. 2

11.82

D. Adjustment Test for Manifold Pres npensator

Test at n = 500 rev/min decreasing XXXXX pressure – in bar gauge pressure

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel- diminution - mm (1) difference
LS 1010 + MW 31	0,9 bar	 0,4 0,3	12,7 - 12,8 11,9 - 12,0 10,4 - 10,6

Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

F8

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 VOL 7,0 g
4. Edition
En

PE 6 P 110 A 320 RS 413 RQV 250-1200 PA 499

supersedes 5.81
company: Volvo
engine: TD 70 F
174 kW (237 PS)

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 3,0-3,1 (2,95-3,15) mm (from BDC) = RW 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	12,4+0,1	12,7-12,9	0,4(0,8)			
250	5,2-5,4	1,6-2,0	0,3(0,6)			

Adjust the fuel delivery from each outlet according to the values in [ ].

B. Governor Settings

Upper rated speed: Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min (1a) (2a) 3	Intermediate rated speed: Degree of deflection of control lever 4	rev/min 5	Control rod travel mm (4) 6	Lower rated speed: Degree of deflection of control lever 7	rev/min 8	Control rod travel mm (3) 9	Sliding sleeve travel (1): rev/min 10	mm 11
max.	1200	15,2-17,8	-	-	-	ca. 9	100	min. 6,9	200	0,6-0,9
							250	5,2-5,4	530	3,2-3,6
ca. 62	11,4	1240-1250					440-500	= 2,0	870	5,8-6,0
	4,0	1370-1400							1200	8,2
	1500	0 - 1,0				(3a)				

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) (2): rev/min 1	cm³/1000 strokes 2	Rotational-speed limitation intermediate speed (2b) (4a): rev/min 3	Fuel delivery characteristics high idle speed (5a) (5b): rev/min 4	cm³/1000 strokes 5	Starting fuel delivery idle switching point (6): rev/min 6	cm³/1000 strokes 7	Torque-control travel (5): rev/min 8	Control rod travel mm 9
LDA 700	0,75 bar 127,0-129,0 (124,0-132,0)	1240-1250 *	LDA 700	0 bar 78,0-81,0 (75,0-84,0)	100	160,0-200,0 = 20,0-21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

12.82

F9

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F9

D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing / increasing pressure – in bar gauge pressure

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel- diminution / difference mm (1)
PE 6 P .. RS 413 + RQV..PA 499	0,51	0,75 0 0,30	12,0-12,1 12,4-12,5 10,2-10,4 10,7-10,9

Notes.

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 VOL 7,0 g 1
1. Edition

En

PE 6 P 110 A 320 RS 413 Z RQV 250-1200 PA 499

supersedes
company: Volvo
engine: TD 70 G
155 kW (210 PS)

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 3,0-3,1 (2,95-3,15) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	11,1+0,1	10,2-10,4	0,4(0,8)			
250	4,9-5,1	1,6-2,0	0,3(0,6)			

Adjust the fuel delivery from each outlet according to the values in [ ].

B. Governor Settings

Upper rated speed: Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min (1a) (2a) 3	Intermediate rated speed: Degree of deflection of control lever 4	rev/min 5	Control rod travel mm (4) 6	Lower rated speed: Degree of deflection of control lever 7	rev/min 8	Control rod travel mm (3) 9	Sliding sleeve travel (1): rev/min 10	mm 11
max.	1200	15,2-17,8	-	-	-	ca. 9	100	min. 6,5	200	0,6-0,8
							250	4,9-5,1	530	3,1-3,5
ca.59	10,1	1240-1250							870	5,6-5,9
	4,0	1355-1385				300-410			1200	7,9
	1500	0 - 1,0								
						(3a)				

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) (2): rev/mn 1	cm³/1000 strokes 2	Rotational-speed limitation (2b) intermediate speed (4a): rev/min 3	Fuel delivery characteristics (5a) high idle speed (5b): rev/min 4	cm³/1000 strokes 5	Starting fuel delivery (8) Idle switching point: rev/min 6	cm³/1000 strokes 7	Torque-control (5) travel: rev/min 8	Control rod travel mm 9
LDA	0,75 bar	1240-1250*	LDA	0 bar	100	160,0-200,0	-	-
700	102,0-104,0		700	78,0-81,0		= 20,0-21,0		
	(99,0-107,0)			(75,0-84,0)		mm RW		

Checking values in brackets

* 1 mm less control rod travel than col. 2

12.82

F11

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F11

D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing / increasing pressure – in bar gauge pressure

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel - diminution / difference mm (1)
PE 6 P .. RS 413 + RQV.. PA 499	0,34	0,75 0 0,27	10,8-10,9 11,1-11,2 9,8-9,9 10,3-10,4

Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps and Governors

40

(1A)

WPP 001/4 DAF 11,6 o3

1. Edition

En

PE 6 P 120 A 320 RS 415-1 RSV 250-900 P 5/475

supersedes –

company DAF

engine DKS-E 1160 206 kW (280 PS)

Values apply to
engine nozzle-and-holder assemblies 1 688 901 019
and engine fuel-injection tubing 1 680 750 067

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke 2,8 - 2,9 (2,75-2,95) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm (2) 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
650	11,9+0,1	18,4 - 18,7	0,5(0,9)			
250	6,7-6,9	1,9 - 2,3	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in ☐

B. Governor Settings

(1) Upper rated speed rev/min: Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	Intermediate rated speed 4	5	6	(4) Lower rated speed: Control-lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	(3) Torque control: rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	ca. 24	250	6,3	650	12,1-12,2
	x	= 5,0					250	6,7-6,9	900	11,4-11,6
ca. 46	10,4	940-950					395-455	= 2,0		
(2a)	4,0	1025-1055								
	1200	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2b) Full-load stop, Test oil temp. 40°C (104°F): rev/min 1	cm³/1000 strokes 2	(6) Rotational-speed limitat, Note changed to) rev/min 3	(3a) Fuel delivery characteristics: rev/min 4	cm³/1000 strokes 5	Starting fuel delivery Idle: rev/min 6	(5) cm³/1000 strokes 7	(4a) Idle stop: rev/min 8	Control rod travel mm 9
LDA 650	0,7 bar 184,0-187,0 (181,0-190,0)	940-950*	LDA 900	0,7 bar 181,0-186,0 (178,0-189,0)	100	310,0-350,0 = 19,5 - 21,0 mm RW	250	6,8
			LDA 600	0 bar 129,0-132,0 (126,0-135,0)				

Checking values in brackets

* 1 mm less control rod travel than col 2

12.82

F13

D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing / increasing pressure – in bar gauge pressure

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel- diminution difference mm (1)
PE6P .. RS 415-1 + RSV .. P 5/475	0,27	0,70 0 0,12	11,4 - 11,5 11,9 - 12,0 9,8 - 9,9 10,0 - 10,6

Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps and Governors

40

(1A) WPP 001/4 DAF 11,6 o 1
3. Edition
En

Testoil-ISO 4113

PE 6 P 120 A 320 RS 415 RSV 250-900P5/475

supersedes 8.81
company DAF
engine DKS-1160 E1160
206 kW (280 PS)

Values apply to
engine nozzle-and-holder assemblies 1 688 901 019
and engine fuel-injection tubing 1 680 750 067

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,90-3,00 (2,85-3,05) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm (2) 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
650	11,9-12,0	18,4 - 18,7	0,5 (0,9)			
250	6,7-6,9	1,9 - 2,3	0,8 (1,2)			

Adjust the fuel delivery from each outlet according to the values in ☐

B. Governor Settings

(1) Upper rated speed rev/min: Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	Intermediate rated speed 4	5	6	(4) Lower rated speed: Control-lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	(3) Torque control: rev/min 10	Control rod travel mm 11
loose	800 0,3-1,0 x = 5,75					ca.24	250	6,3	900	11,4-11,6
									650	12,1-12,2
ca.46	940-950 =10,5						250	6,7-6,9		
(2a)	1025-1055=4,0 1200=0,3-1,7						395-455	= 2,0		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2b) Full-load stop, Test oil temp. 40°C (104°F): rev/min 1	cm³/1000 strokes 2	(6) Rotational-speed limitat, Note changed to) rev/min 3	(3a) Fuel delivery characteristics: rev/min 4	cm³/1000 strokes 5	Starting fuel delivery (5) Idle: rev/min 6	cm³/1000 strokes 7	(4a) Idle stop: rev/min 8	Control rod travel mm 9
LDA	0,7 bar	940-950 *	LDA	0,7 bar	100	310 - 350 = 19,5 - 21,0 mm RW	250	6,7
650	184,0 - 187,0 (181,0 - 190,0)		900	181,0-186,0 (178,0-189,0)				
			LDA 600	0 bar 129,0 - 132,0 (126,0 - 135,0)				

Checking values in brackets

* 1 mm less control rod travel than col 2

12.82

BOSCH Geschäftsbereich KH Kundendienst Kfz-Ausrüstung

F15

D. Adjustment Test for Manifold Pressure Compensator

Test at n = 600 rev/min decreasing / increasing (XXXXX) pressure – in bar gauge pressure

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel- diminution difference mm (1)
PE 6 P..RS 415 m. RSV..P5/475	0,7		11,9-12,0
		0,26	11,4-11,5
		0,12	10,0-10,6
		0	9,8-9,9

Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

PES 4 A 85 D 410/3 RS 2638 RSV 325-1150 A 8 B 2168 L

supersedes 6.82
company: KHD
engine: BF 4 L 913 T
66 kW (90 PS) -1
2300 min
Tractor DX 92 (1)
60 kW (82 PS) -1
2300 min
Tractor DX 86 (2)

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,5-2,6 (2,45-2,65) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery (1) cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery (2) cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	11,8+0,1	8,2 - 8,3	0,3(0,45)	10,6+0,1	7,5-7,6	
325	7,7-7,9	1,0 - 1,6	0,2(0,4)	7,7-7,9	1,0-1,6	

Adjust the fuel delivery from each outlet according to the values in [ ].

B. Governor Settings

Upper rated speed			Intermediate rated speed			(4) Lower rated speed			(3) Torque control	
Degree of deflection of control lever 1	rev/min 2	Control rod travel mm 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	ca. 26	325	7,3	1150	11,8+0,1
	X = 4,0						100	min. 19,0	500	12,6+0,1
							325	7,7-7,9	875	12,0+0,3
ca.54	10,8	1190-1200					720-780	= 2,0		
(5)	4,0	1325-1355								
	1475	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2) Full-load stop Test oil temp. 40°C (104°F)		(6) Rotational-speed limitat.	(3a) Fuel delivery characteristics		Starting fuel delivery Idle		(5a) Idle stop	
rev/min 1	cm³/1000 strokes 2	Note: changed to ... rev/min 3	rev/min 4	cm³/1000 strokes 5	rev/min 6	cm³/1000 strokes 7	rev/min 8	Control rod travel mm 9
(1) 1150	82,0-83,0 (80,0-85,0)	1190-1200*	800	74,5-77,5 (72,5-79,5)	100	108,5-118,5	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

11.82

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B. Governor Settings

(1) Upper rated speed rev/min: Degree of deflection of control lever (1)	Control rod travel mm (2)	Control rod travel mm rev/min (3)	Intermediate rated speed (4)	(5)	(6)	(4) Control-lever deflection in degrees (7)	Lower rated speed rev/min (8)	Control rod travel mm (9)	(3) Torque control rev/min (10)	Control rod travel mm (11)
loose	800	0,3-1,0	-	-	-	ca.26	325	7,0	1150	10,5+0,1
	x =	4,0					100	min.19,0	500	11,2+0,1
ca.56	9,6	1220-1230					325	7,4-7,6	900	10,9+0,3
(2a)	4,0	1325-1355					720-780	= 2,0		
	1475	0,3-1,7								

C. Settings for Fuel Injection Pump with Fitted Governor

(2b) Full-load stop, Test oil temp. 40°C (104°F): rev/min (1)	cm³/1000 strokes (2)	(6) Rotational-speed limitat. Note: changed to ...) rev/min (3)	(3a) Fuel delivery characteristics: rev/min (4)	cm³/1000 strokes (5)	Starting fuel delivery (5) Idle: rev/min (6)	cm³/1000 strokes (7)	(4a) Idle stop: rev/min (8)	Control rod travel mm (9)
(2) 1150	74,5-75,5 (72,5-77,5)	1220-1230*	800	65,5-68,5 (63,5-70,5)	100	108,5-118,5	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

B. Governor Settings

(1) Upper rated speed rev/min: Degree of deflection of control lever (1)	Control rod travel mm (2)	Control rod travel mm rev/min (3)	Intermediate rated speed (4)	(5)	(6)	(4) Control-lever deflection in degrees (7)	Lower rated speed rev/min (8)	Control rod travel mm (9)	(3) Torque control rev/min (10)	Control rod travel mm (11)
(2a)										

C. Settings for Fuel Injection Pump with Fitted Governor

(2b) Full-load stop, Test oil temp. 40°C (104°F): rev/min (1)	cm³/1000 strokes (2)	(6) Rotational-speed limitat. Note: changed to ...) rev/min (3)	(3a) Fuel delivery characteristics: rev/min (4)	cm³/1000 strokes (5)	Starting fuel delivery (5) Idle: rev/min (6)	cm³/1000 strokes (7)	(4a) Idle stop: rev/min (8)	Control rod travel mm (9)

Checking values in brackets

* 1 mm less control rod travel than col. 2

PES 4M 50 A 320 RS 14 EP/MN 60 M 12 d. M 13 d
... RS 14 Z (See reverse side)

supersedes 6.10.61
company Daimler-Benz
engine OM 621.912
(190 D-55 PS)

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,7-1,8 mm (from BDC) RW 18

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 5	Fuel delivery cm³/100 strokes 6	Spring pre-tensioning (torque-control valve) mm 7
1000	15	2,9-3,4	0,2			
1000	9	0,8-1,2				
1000	18	3,7-4,3				
200	9	0,7-1,1				

Adjust the fuel delivery from each outlet according to the values in [ ]

B. Governor Settings

Torque control travel mm 1	Leakage: Vacuum pressure drop mm water col 2	Leakage: Time at least s 3	Control-rod travel limitation breakaway*: Vacuum mm w c 4	Control-rod travel limitation breakaway*: Control rod travel mm 5	Control rod travel test: Vacuum mm w c 6	Control rod travel test: Control rod travel mm 7	Auxiliary spring auxiliary cam**: Vacuum mm w c. 8	Auxiliary spring auxiliary cam**: Control rod travel mm 9	Torque control: Vacuum mm w.c. 10	Torque control: Control rod travel mm 11
1,2+0,1	500-480	10	-	-	435	13,7*	-	-	150	14,9-15,0
					465	8,2-13,3			250	14,5-14,8
					500	3,1-9,5			350	13,8-14,2
					570	0 - 3,6				

control rod travel test (cols. 4–11)
= rotational speed 500 rev/min
adjust breakaway (cols. 4–5) by means of shims*
cam adjustment (B 8-9 – C 7-8) by means of shims**

* Set breakaway between 440 - 460 mm water column by inserting WMS 22 S 18-19 X washers under the governor spring.

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load stop screw, Test oil temp 40°C (104°F): rev/min 1	Vacuum mm wat. col 2	cm³/1000 strokes 3	Fuel delivery characteristics: rev/min 4	Vacuum mm wat. col 5	cm³/1000 strokes 6	Idle (stop)** idle (imbalance): rev/min 7	Vacuum mm wat. col	Control road travel from full-load to idle: mm cm³/1000 strokes 8
2000	430-435	32,7-33,7	1600	300	31,2-33,2		**	
			1000	100	31,7-33,7		Seite 3	
			250	cd.480	4,5-10,5			
					Dispersion max. 1,5			

Checking values in brackets

1.33

F19

B. Governor Settings

Torque control travel	Leakage: Vacuum pressure drop	Leakage: Time at least	Control-rod travel limitation breakaway*: Vacuum	Control-rod travel limitation breakaway*: Control rod travel	Control rod travel test: Vacuum	Control rod travel test: Control rod travel	Auxiliary spring auxiliary cam**: Vacuum	Auxiliary spring auxiliary cam**: Control rod travel	Torque control: Vacuum	Torque control: Control rod travel
mm	mm water col	s	mm w c	mm	mm w c	mm	mm w c	mm	mm w c	mm
1	2	3	4	5	6	7	8	9	10	11
1,2+0,1	500-480	10	-	-	430 465 500 575	12,8* 7,2-12 2,0-8,2 0 - 2,5	-	-	150 250 350 430	14 - 14,1 13,6-13,9 12,9-13,3 12,8

control rod travel test (cols 4-11)
- rotational speed 500 rev/min
adjust breakaway (cols 4-5) by means of shims*
cam adjustment (B 8-9 - C 7-8) by means of shims**

* Set breakaway between 440 - 460 mm water column by inserting WMS 22 S 18-19 X washers under the governor spring.

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load stop screw, Test oil temp 40°C (104°F): rev/min	Vacuum mm wat col	cm³/1000 strokes	Fuel delivery characteristics: rev/min	Vacuum mm wat col	cm³/1000 strokes	idle (stop)** idle (imbalance): rev/min	Vacuum mm wat col	Control road travel from full-load to idle mm cm³/1000 strokes
1	2	3	4	5	6	7		8
2000	430-435	29,7-30,7	1600 1000	300 100	28,2-30,2 28,7-30,7		** Seite 3	
			250	ca. 480	4,5-10,5 Dispersion max. 1,5			

Checking values in brackets

B. Governor Settings

Torque control travel	Leakage: Vacuum pressure drop	Leakage: Time at least	Control-rod travel limitation breakaway*: Vacuum	Control-rod travel limitation breakaway*: Control rod travel	Control rod travel test: Vacuum	Control rod travel test: Control rod travel	Auxiliary spring auxiliary cam**: Vacuum	Auxiliary spring auxiliary cam**: Control rod travel	Torque control: Vacuum	Torque control: Control rod travel
mm	mm water col	s	mm w c	mm	mm w c	mm	mm w c	mm	mm w c	mm
1	2	3	4	5	6	7	8	9	10	11

control rod travel test (cols 4-11)
- rotational speed 500 rev/min
adjust breakaway (cols 4-5) by means of shims*
cam adjustment (B 8-9 - C 7-8) by means of shims**

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load stop screw, Test oil temp 40°C (104°F): rev/min	Vacuum mm wat col	cm³/1000 strokes	Fuel delivery characteristics: rev/min	Vacuum mm wat col	cm³/1000 strokes	idle (stop)** idle (imbalance): rev/min	Vacuum mm wat col	Control road travel from full-load to idle mm cm³/1000 strokes
1	2	3	4	5	6	7		8

F20

F20 Checking values in brackets

** Setting the idle speed stop

At $n = 500\ min^{-1}$ and with the governor stop cam switched off, bring the control rod into full-load position by increasing the water column to 430 - 435 mm (maintain exactly) and measure the control-rod travel reached. Increase the water column further until the control rod has adjusted itself to 3 mm less control-rod travel than when measured in full-load position at a water column of 430 - 435 mm. In this position slowly push the stop cam through to its final position and at the same time observe the control rod.

If the spring retainer is correctly set, the control rod should adjust itself to a control-rod travel of 2 ± 0.5 mm (with ..S 14 Z of 2.0 ± 0.5 mm) less than when measured in full-load position at a water column of 430 - 435 mm. If the setting value is not reached or is exceeded, the position of the spring bolt in the spring retainer must be modified by inserting an appropriate number of washers between the spring-bolt collar and the retaining ring.

Please note

This modification causes the initial tension in the spring retainer to change. This initial tension should be brought up to the prescribed tension of 50 - 90 g again by inserting washers between the springs and the spring bolt base.

F21

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 MWM 33,2 d 1
En
3. Edition

Testoil-ISO 4113

PE 6 P 12o A.. S 338, EP/RSUV.. 330, 332,
PE 8 P 120 A.. V 10998, 10999

supersedes 10.78
company MWM, Südd. Bremsen
engine D/TD/TBD 601..
D/TD/TBD 602..

Complete type designations and instructions page 3.

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,2+0.1 - RW 18 mm (from BDC) (+0,15 / -0,05)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
750	13	25,8 - 27,8	1,0			
600	9	11,8 - 12,8				
200	9	7,8 - 9,8				

Adjust the fuel delivery from each outlet according to the values in [ ].

B. Governor Settings

300-75o P9/332

Upper rated speed: Degree of deflection of control lever 1	rev/min 2	Control rod travel mm 3	Intermediate rated speed: Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	(4) Lower rated speed: Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	(3) Torque control: rev/min 10	Control rod travel mm 11
ca.68	750	16,0				ca.31	300	8,0	730	0
	775	11,5	without auxiliary spring				50	19 - 21		
	800	6,0					300	7,7-8,3		
	780	9,5 - 11,5	with auxiliary spring							
(5)	820	3,0 - 5,0					35o	2,7-5,1		
	890	0,3 - 1,0					420	0 - 1	330	1,2-1,8

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2) Full-load stop: Test oil temp. 40°C (104°F) rev/min 1	cm³/1000 strokes 2	(6) Rotational-speed limitat. Note: changed to ... rev/min 3	(3a) Fuel delivery characteristics: rev/min 4	cm³/1000 strokes 5	Starting fuel delivery Idle: rev/min 6	cm³/1000 strokes 7	(5a) Idle stop: rev/min 8	Control rod travel mm 9
700	298,0 (14,1 mm RW)							./.

Checking values in brackets

* 1 mm less control rod travel than col. 2

11.82

F22

BOSCH Geschäftsbereich KH Kundendienst Kfz-Ausrüstung

F22

B. Governor Settings

300-900 P10 A330,

(1A)

(1) Upper rated speed			Intermediate rated speed			(4) Lower rated speed			(3) Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
ca.67	900	16,0	without auxiliary spring			ca.27	300	8,0	880	0
	930	9,8					50	19 - 21		
	950	5,8					300	7,7-8,3		
	930	8,5-11,6	with auxiliary spring							
(5)	960	3,0-5,8					350	2,6-5,0	330	1,2-1,8
	1040	0,3-1,0					440	0 - 1		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2) Full-load stop		(6) Rotational-speed limitat.	(3a) Fuel delivery characteristics		Starting fuel delivery Idle		(5a) Idle stop	
Test oil temp 40°C (104°F)		Note changed to rev/min						Control rod travel
rev/min	cm^3/1000 strokes		rev/min	cm^3/1000 strokes	rev/min	cm^3/1000 strokes	rev/min	mm
1	2	3	4	5	6	7	8	9
700	298,0 (14,1 mm RW)	910	(6a)					

Checking values in brackets

* 1 mm less control rod travel than col 2

Testoil-ISO 4113

B. Governor Settings

(1) Upper rated speed			Intermediate rated speed			(4) Lower rated speed			(3) Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
(5)										

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2) Full-load stop		(6) Rotational-speed limitat.	(3a) Fuel delivery characteristics		Starting fuel delivery Idle		(5a) Idle stop	
Test oil temp 40°C (104°F)		Note: changed to rev/min						Control rod travel
rev/min	cm^3/1000 strokes		rev/min	cm^3/1000 strokes	rev/min	cm^3/1000 strokes	rev/min	mm
1	2	3	4	5	6	7	8	9

Checking values in brackets

* 1 mm less control rod travel than col 2

F23

INSTRUCTIONS

1. Complete type designations and engine designations

PE 6 P 120 A 320 RS338 (V10997) EP/RSUV 300-900 P 10 A330/1R D/TD/TBD 601-6 + S

PE 8 P 120 A 500/5 LV10998 --- D/TD/TBD 602 V16+S
PE 8 P 120 A 520/5 LV10999 EP/RSUV 300-750 P9 A332/1R

2. Test details

Test equipment according to W 400/305 En: T-nozzles and tubing 8 x 2 x 1000 with delivery-valve holder on pump M 16 x 1.5

Basic governor setting: vertical position = 35° control lever deflection.

3. Cam sequence and angular cam spacing

PE 6 P .. 338:
1 - 5 - 3 - 6 - 2 - 4
0 - 60 - 120 - 180 - 240 - 300° (standard)

PE 8 P .. 10998:
1 - 6 - 8/2 - 4 - 7 - 3 - 5
0 - 45 - 90 - 135 - 180 - 225 - 315°

PE 8 P .. 10999:
1 - 6 - 2 - 8 - 4 - 7 - 3/5
0 - 45 - 90 - 180 - 225 - 270 - 315°

4. The full-load values given represent a basic setting which must be increased according to output and engine speed.

Test Specifications Fuel Injection Pumps and Governors ②

WPP 001/4 FAP 11,0 a

2. Edition

En

Testoil-ISO 4113

PE 6 P 110 A 320 RS 405 RQ 250/1100 PA 489

supersedes 10.81

company: FAP-Famos

engine: 2 FP 117 B
2 FP 121 B
2 FP 125 B
2 FP 202 B
188 kW (256 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,8-2,9 (2,75-295) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	13,0+0,1	13,5 - 13,7	0,4(0,8)			
250	8,3-8,5	1,6 - 2,2	0,4(0,7)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check ① Control rod travel		Full-load speed regulation Setting point		Test specifications ④		Idle speed regulation Setting point		Test specifications ⑤		Torque control ③	
rev/min 1	mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
700	15,6-16,4	700	16,0	12,0 4,0 1400	1145-1160 1230-1250 0 - 1,0	250	6,0	100 250 435-475	min. 7, 5,9-6,1 =2,0 mm	1100 700	13,0+0,1 13,0+0,2

Torque-control travel on flyweight assembly dimension a = 0 mm

Speed regulation At 1145-1160 min^{-1}

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) ②		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min 1	cm³/-1000 strokes 2	rev/min 3	rev/min 4	cm³/-1000 strokes 5	rev/min 6	Control rod travel cm³/1000 strokes / mm 7
LDA 1100	0,7 bar 135,0 - 137,0 (132,0 - 140,0)		LDA 500	0 bar 98,0 - 100,0 (95,0 - 103,0)	100	170,0-190,0

Checking values in brackets

12.82

5A

D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing / increasing pressure – in bar gauge pressure

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel - diminution difference mm (1)
PE 6 P.. RS 405 mit .. PA 489	0,9	0 0,55 0,34	13,0 - 13,1 11,5 - 11,6 12,5 - 12,6 11,7 - 11,9

Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

G2

Test Specifications Fuel Injection Pumps ② and Governors

WPP 001/4 UNI 9,6 a 1
1. Edition
En

PES 6 P 110 A 320 RS 3105-1 RQ 275/1150 PA 653

supersedes-
company Unic
engine 8220-32
129 kW (176 PS)

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 3,2-3,3 (3,15-3,35) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	12,0+0,1	12,8-13,0	0,4(0,8)			
275	5,5-5,7	1,4-2,0	0,4(0,7)			

Adjust the fuel delivery from each outlet according to the values in [ ].

B. Governor Settings

Checking of slider PRG check ① rev/min 1	Control rod travel mm 2	Full-load speed regulation Setting point rev/min 3	Control rod travel mm 4	Test specifications ④ Control rod travel mm 5	rev/min 6	Idle speed regulation Setting point rev/min 7	Control rod travel mm 8	Test specifications ⑤ rev/min 9	Control rod travel mm 10	Torque control ③ rev/min 11	Control rod travel mm 12
600 VH = max. 46°	19,2-20,8	600	20,0	11,0 4,0	1195-1210 1250-1280	275	5,6	100 275 345-385	min. 7,1 5,5-5,7 = 2,0	1150 600	12,0+0,1 12,0+0,2

Torque-control travel on flyweight assembly dimension a = - mm

Speed regulation: At 1195-1210 min^{-1}

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp 40°C (104°F) ② rev/min 1	cm³/-1000 strokes 2	Control rod stop ③a rev/min 3	Fuel delivery characteristics ③b rev/min 4	cm³/-1000 strokes 5	Starting fuel delivery Idle speed ⑥ rev/min 6	Control rod travel mm / cm³/1000 strokes 7
LDA 1150	0,7 bar 128,0-130,0 (125,0-133,0)	-	LDA 400	0 bar 81,0-83,0 (78,0-86,0)	100	160,0-180,0

Checking values in brackets

11.82

BOSCH Geschäftsbereich KH. Kundendienst. Kfz-Ausrüstung

D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing / increasing pressure – in bar gauge pressure

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel - diminution difference mm (1)
PES 6 P..RS 3105-1 + RQ..PA 653	0,19		11,5-11,6
		0,70	12,0-12,1
		0	10,1-10,2
		0,14	10,5-10,7

Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps and Governors

40

WPP001/4STE9,7 b 1
1. Edition

En

PE6P110A721RS3101 RQ 300/1200 PA 412

supersedes -
company Steyr
engine WD615.67
206 kW (280 PS)

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,8-2,9 (2,75-2,95) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1200	12,0+0,1	16,2-16,4	0,4(0,8)			
300	5,8-6,0	1,2-1,8	0,4(0,7)			

Adjust the fuel delivery from each outlet according to the values in [ ].

B. Governor Settings

Checking of slider PRG check (1) rev/min 1	Control rod travel mm 2	Full-load speed regulation Setting point rev/min 3	Control rod travel mm 4	Test specifications (4) Control rod travel mm 5	rev/min 6	Idle speed regulation Setting point rev/min 7	Control rod travel mm 8	Test specifications (5) rev/min 9	Control rod travel mm 10	Torque control (3) rev/min 11	Control rod travel mm 12
600	15,6-16,4	600	16,0	11,0	1245-1260	300	5,9	100	min.7,5	1200	12,0-12,1
				4,0	1325-1355			300	5,8-6,0	600	12,4-12,5
				1450	0 - 1,0			405-445	= 2,0	985	12,3-12,4
										1075	12,0-12,2

Torque-control travel on flyweight assembly dimension a = 0,25 mm

Speed regulation: At 1245-1260 min^{-1}

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) (2) rev/min 1	cm³/-1000 strokes 2	Control rod stop (3a) rev/min 3	Fuel delivery characteristics (3b) rev/min 4	cm³/-1000 strokes 5	Starting fuel delivery Idle speed (6) rev/min 6	Control rod travel cm³/1000 strokes / mm 7
LDA 1200	0,7 bar 162,0-164,0 (159,0-167,0)	-	LDA 700	0,7 bar 165,0-169,0 (163,0-171,0)	100	240,0-270,0
			LDA 700	0 bar 120,0-122,0 (117,0-125,0)		

Checking values in brackets

11.82

G5

D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing / increasing pressure – in bar gauge pressure

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel - diminution difference mm (1)
PE6P..RS3101	0,42		11,5-11,6
+ RQ..PA412		0,70	12,0-12,1
		0	9,8-9,9
		0,33	10,2-10,4

Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

G6

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 BET 8,8 b
2. Edition

En

PE 6 P 120 A 320 RS 377 RQV 250-1200 PA 425 R
Values apply to
engine nozzle-and-holder assemblies 1 688 901 019
and engine fuel-injection tubing 1 680 750 067

supersedes 2.82
company RVI
engine MIDS 062 030
158 kW (215 PS)

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2.8-2.9 (2.75-2.95) mm (from BDC) = RW 9.0 - 12.0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1200	12.7+0.1	15.2-15.5	0.4 (0.9)			
275	5.4-5.6	1.1-1.7	0.4 (1.2)			

Adjust the fuel delivery from each outlet according to the values in [ ]

B. Governor Settings

Upper rated speed: Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 1a 2a 3	Intermediate rated speed: Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 4 6	Lower rated speed: Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 3 9	Sliding sleeve travel 1: rev/min 10	mm 11
max.	1240	15.2-17.8	-	-	-	ca.15	100	min.7.0	200	0.3-0.6
							275	5.4-5.6	530	2.9-3.1
ca.66	11.7	1240-1250				280-380			870	4.8-5.0
	4.0	1320-1350							1200	8.0
	1450	0 - 1.0				3a				

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) 2: rev/min 1	cm³/1000 strokes 2	Rotational-speed limitation intermediate speed 2b 4a: rev/min 3	Fuel delivery characteristics high idle speed 5a 5b: rev/min 4	cm³/1000 strokes 5	Starting fuel delivery idle switching point 6: rev/min 6	cm³/1000 strokes 7	Torque-control travel 5: rev/min 8	Control rod travel mm 9
LDA 1200	0.7 bar 152.0-155.0 (149.0-158.0)	1240-1250*	LDA 350	0 bar 51.0-55.0 (48.0-53.0)	100	19.5-21.0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

11.82

G7

BOSCH
Geschäftsbereich KH Kundendienst, Kfz-Ausrüstung
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D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing / increasing pressure – in bar gauge pressure

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel - diminution difference mm (1)
PE6P..RS377 + RQV..PA 425 R	0,20		12,3-12,4
		0,70	12,7-12,8
		0	11,1-11,2
		0,16	11,5-11,7

Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

G8

En 58

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 CHR 11,9 a 1
1. Edition
En

PE 6 P 110 A 720 RS 380 RQV 250-1100 PA 503

supersedes –
company: Chrysler
engine: BS36

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,8-2,9 (2,75-2,95) mm (from BDC) ≙ RW 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	14,5+0,1	16,6-16,8	0,4 (0,8)			
250	8,5-8,7	2,4-3,0	0,4 (0,7)			

Adjust the fuel delivery from each outlet according to the values in [ ].

B. Governor Settings

Upper rated speed: Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min ①a ②a 3	Intermediate rated speed: Degree of deflection of control lever 4	rev/min 5	Control rod travel mm ④ 6	Lower rated speed: Degree of deflection of control lever 7	rev/min 8	Control rod travel mm ③ 9	Sliding sleeve travel ① rev/min 10	mm 11
max.	1150	15,2-17,8	-	-	-	ca. 16	100	min.10,0	200	0,5-0,8
							250	8,5-8,7	500	4,0-4,2
ca. 66	13,5	1140-1150					425-485 = 2,0		800	5,5-5,7
	4,0	1260-1290				350-465			1100	7,9
	1400	0-1,0								
						③a				

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ② rev/min 1	cm³/1000 strokes 2	Rotational-speed limitation ②b intermediate speed ④a rev/min 3	Fuel delivery characteristics ⑤a high idle speed ⑤b rev/min 4	cm³/1000 strokes 5	Starting fuel delivery ⑥ idle switching point rev/min 6	cm³/1000 strokes 7	Torque-control travel ⑤ rev/min 8	Control rod travel mm 9
LDA 1100	0,7 bar 166,0-168,0 (163,0-171,0)	1140-1150*	LDA 1100	0 bar 127,0-131,0 (124,0-134,0)	100	19,5-21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

11.82

BOSCH Geschäftsbereich KH. Kundendienst. Kfz-Ausrüstung.

53

D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing / increasing pressure – in bar gauge pressure

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel- diminution difference mm (1)
PE6P..RS380	0,50		14,0 - 14,1
+ ..PA503		0,70	14,5 - 14,6
		0	12,6 - 12,7
		0,36	12,9 - 13,2

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps and Governors

(1) PP 001/4 MAN 11,1 q 8
1. Edition
En

PES 6 P 120 A 720 LS 388 RQV 250-1100 PA 508

supersedes –
company: MAN
engine: D 2566 MKF
235 kW (320 PS)

Values apply to
engine nozzle-and-holder assemblies 1 688 901 019
and engine fuel-injection tubing 1 680 750 067

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 3,0-3,1 (2,95-3,15) mm (from BDC) 7yl. 6 - RW 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
750	13,1+0,1	21,7-22,0	0,5(0,9)			
250	6,3-6,5	1,1-1,7	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in [ ].

B. Governor Settings

Upper rated speed: Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min (1a) (2a) 3	Intermediate rated speed: Degree of deflection of control lever 4	rev/min 5	Control rod travel mm (4) 6	Lower rated speed: Degree of deflection of control lever 7	rev/min 8	Control rod travel mm (3) 9	Sliding sleeve travel (1): rev/min 10	mm 11
max.	1100	15,2-17,8	-	-	-	ca.15 (3a)	100 250 400-460	min.7,9 6,3-6,5 = 2,0	200 500 800 1100	0,6-0,8 4,3-4,5 5,9-6,1 8,5
ca.64	10,3 4,0 1400	1140-1150 1225-1255 0 - 1,0								

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery, Control-rod stop, Test oil temp. 40°C (104°F) (2): rev/min 1	cm³/1000 strokes 2	Rotational-speed limitation intermediate speed (2b) (4a): rev/min 3	Fuel delivery characteristics high idle speed (5a) (5b): rev/min 4	cm³/1000 strokes 5	Starting fuel delivery idle switching point (6): rev/min 6	cm³/1000 strokes 7	Torque-control travel (5): rev/min 8	Control rod travel mm 9
LDA 750	1,0 bar 217,0-220,0 (214,0-223,0)	1140-1150*	LDA 500	0,34 bar 145,0-150,0 (142,0-153,0	100	205,0-225,0	1100 750 900 1000	11,3+0,1 13,1+0,1 12,6+0,1 11,8+0,2
LDA 1100	1,0 bar 180,0-185,0 (177,0-188,0)		LDA 500	0 bar 101,0-104,0 (98,0-107,0				

Checking values in brackets

* 1 mm less control rod travel than col. 2

11.82

G11

BOSCH Geschäftsbereich KH. Kundendienst. Kfz-Ausrustung.

G11

D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing / increasing pressure – in bar gauge pressure

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel- diminution / difference mm (1)
PES 6 P..LS 388 + RQV.. PA 508	0,34	1,0 0 0,61	10,9-11,0 13,1-13,2 9,4-9,5 12,5-12,9

Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps (1) and Governors

WPP001/4MAN11,1 q 9

1. Edition

En

PES6P120A720LS388 RQV 250-1050 PA 508

supersedes

Values apply to

company MAN

engine D2566 MK/319
235 kW (320 PS)

engine nozzle-and-holder assemblies 1 688 901 019
and engine fuel-injection tubing 1 680 750 067

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 3,0-3,1 (2,95-3,15) mm (from BDC) Zyl. 6 - RW 9,0 - 12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
750	13,1+0,1	21,7-22,0	0,5(0,9)			
250	6,3-6,5	1,1-1,7	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in ☐

B. Governor Settings

Upper rated speed: Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min (1a) (2a) 3	Intermediate rated speed: Degree of deflection of control lever 4	rev/min 5	Control rod travel mm (4) 6	Lower rated speed: Degree of deflection of control lever 7	rev/min 8	Control rod travel mm (3) 9	Sliding sleeve travel (1): rev/min 10	mm 11
max.	1100	15,2-17,8	-	-	-	ca.11 (3a)	100	min.7,1	200	
ca.63	10,3	1090-1100					250	6,3-6,5	480	
	4,0	1175-1205					385-445 = 2,0		770	
	1300	0 - 1,0							1050	

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) (2): rev/min 1	cm³/1000 strokes 2	Rotational-speed limitation intermediate speed (2b) (4a): rev/min 3	Fuel delivery characteristics high idle speed (5a) (5b): rev/min 4	cm³/1000 strokes 5	Starting fuel delivery (6) idle switching point: rev/min 6	cm³/1000 strokes 7	Torque-control travel (5): rev/min 8	Control rod travel mm 9
LDA 750	1,0 bar 217,0-220,0 (214,0-223,0)	1090-1100*	LDA 500	0,34 bar 145,0-150,0 (142,0-153,0)	100	205,0-225,0	1050	11,3+0,1
							750	13,1+0,1
							810	12,6+0,2
LDA 1050	1,0 bar 180,0-185,0 (177,0-188,0)		LDA 500	0 bar 101,0-104,0 (98,0-107,0)			950	11,6+0,3

Checking values in brackets

* 1 mm less control rod travel than col. 2

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BOSCH Geschäftsbereich KH Kundendienst. Kfz-Ausrüstung.

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D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing / increasing pressure – in bar gauge pressure

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel - diminution difference mm (1)
PES6P..LS388 +RQV..PA508	0,34	1,0 0 0,61	10,9-11,0 13,1-13,2 9,4- 9,5 12,5-12,9

Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 VOL 10,0 q 2

1. Edition

En

PE 6 P 110 A 320 RS 3108 Z RQV 250-1100 PA 649

supersedes

company Volvo

engine: THD 100 EB
160 kW (218 PS)

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 3,0-3,1 (2,95-3,15) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	10,5+0,1	12,1-12,3	0,4 (0,8)			2,5+0,1
250	5,0-5,2	3,2-3,6	0,3 (0,6)			(2,2-2,9)

Adjust the fuel delivery from each outlet according to the values in ☐.

B. Governor Settings

Upper rated speed: Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm (1a) rev/min (2a) 3	Intermediate rated speed: Degree of deflection of control lever 4	rev/min 5	Control rod travel mm (4) 6	Lower rated speed: Degree of deflection of control lever 7	rev/min 8	Control rod travel mm (3) 9	Sliding sleeve travel (1): rev/min 10	mm 11
max.	1175	15,2-17,8	-	-	-	ca. 10	100	min. 6,7	200	0,7-0,9
							250	5,0-5,2	500	4,2-4,8
ca. 56	9,5	1140-1150							660	
	4,0	1205-1235					345-405=2,0		bis	6,4-6,6
	1350	0-1,0							1040	
									1100	7,3
						(3a)				

Torque control travel a = _ mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) (2): rev/min 1	cm³/1000 strokes 2	Rotational-speed limitation intermediate speed (2b): rev/min (4a) 3	Fuel delivery characteristics high idle speed (5a) (5b): rev/min 4	cm³/1000 strokes 5	Starting fuel delivery Idle switching point (6): rev/min 6	cm³/1000 strokes 7	Torque-control travel (5): rev/min 8	Control rod travel mm 9
LDA	0,75 bar	1140-1150*	LDA	0 bar	100	160,0-190,0	-	-
700	121,0-123,0		700	105,0-107,0		=20,0-21,0		
	(118,0-126,0)			(102,0-110,0)		mm RW		

Checking values in brackets

* 1 mm less control rod travel than col 2

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D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing / increasing pressure – in bar gauge pressure

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel- diminution / difference mm (1)
PE 6 P..RS 3108 Z + RQV..PA 649	0,25	0,75 0 0,22	10,3-10,4 10,5-10,6 9,6-9,8 10,0-10,2

Notes.

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

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Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 CHR 11,9 a
1. Edition

En

PE 6 P 110 A 720 RS 380 RQV 250-1100 PA 434 R

supersedes
company: Chrysler
engine: BSS36

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,8-2,9 (2,75-2,95) mm (from BDC) = RW 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	15,5+0,1	18,6-18,8	0,4 (0,8)			
250	8,5-8,7	2,4-3,0	0,4 (0,7)			

Adjust the fuel delivery from each outlet according to the values in [ ].

B. Governor Settings

Upper rated speed: Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min (1a) (2a) 3	Intermediate rated speed: Degree of deflection of control lever 4	rev/min 5	Control rod travel mm (4) 6	Lower rated speed: Degree of deflection of control lever 7	rev/min 8	Control rod travel mm (3) 9	Sliding sleeve travel (1): rev/min 10	mm 11
max.	1150	15,2-17,8	-	-	-	ca. 16	100	min.10,0	200	0,5-0,7
							250	8,5-8,7	500	4,0-4,2
ca. 66	14,5	1140-1150					425-485	= 2,0	800	5,5-5,7
	4,0	1270-1320				350-465			1100	7,9
	1400	0-1,0				(3a)				

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery, Control-rod stop, Test oil temp. 40°C (104°F) (2): rev/min 1	cm³/1000 strokes 2	Rotational-speed limitation intermediate speed (2b) (4a): rev/min 3	Fuel delivery characteristics high idle speed (5a) (5b): rev/min 4	cm³/1000 strokes 5	Starting fuel delivery idle switching point (6): rev/min 6	cm³/1000 strokes 7	Torque-control travel (5): rev/min 8	Control rod travel mm 9
LDA 1100	0,9 bar 186,0-188,0 (183,0-191,0)	1140-1150*	LDA 1100	0 bar 134,0-138,0 (131,0-141,0)	100	19,5-21,0	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

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D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing / increasing pressure – in bar gauge pressure

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel- diminution difference mm (1)
PE6P..RS380	0,68		15,0 - 15,1
+ ..PA434		0,90	15,5 - 15,6
		0	13,2 - 13,3
		0,48	13,7 - 13,9

Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 VOL 10,0 q 1
1. Edition

En

PE 6 P 110 A 320 RS 3108 X RQV 250-1100 PA 649

supersedes

company Volvo
engine: THD 100 ED
203 kW (276 PS)

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 3,0-3,1 (2,95-3,15) mm (from BDC) = RW 9,0-12,0

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	12,1+0,1	15,8-16,0	0,4 (0,8)			
250	5,0-5,2	3,2-3,6	0,3 (0,6)			

Adjust the fuel delivery from each outlet according to the values in ☐.

B. Governor Settings

Upper rated speed: Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min (1a) (2a) 3	Intermediate rated speed: Degree of deflection of control lever 4	rev/min 5	Control rod travel mm (4) 6	Lower rated speed: Degree of deflection of control lever 7	rev/min 8	Control rod travel mm (3) 9	Sliding sleeve travel (1): rev/min 10	mm 11
max.	1175	15,2-17,8	-	-	-	ca.10 (3a)	100 250 340-405 = 2,0	min.6,7 5,0-5,2	200 500 660 bis 1040 1100	0,7-0,9 4,2-4,8 6,4-6,6 7,3
ca. 65	11,1 4,0 1350	1140-1150 1205-1235 0-1,0								

Torque control travel s = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) (2): rev/min 1	cm³/1000 strokes 2	Rotational-speed limitation (2b) intermediate speed (4a): rev/min 3	Fuel delivery characteristics (5a) high idle speed (5b): rev/min 4	cm³/1000 strokes 5	Starting fuel delivery (6) idle switching point: rev/min 6	cm³/1000 strokes 7	Torque-control travel (5): rev/min 8	Control rod travel mm 9
LDA 700	0,75 bar 158,0-160,0 (155,0-163,0)	1140-1150*	LDA 700	0 bar 105,0-107,0 (102,0-110,0)	100	160,0-190,0 = 20,0-21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

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D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing / increasing pressure – in bar gauge pressure

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel- diminution / difference mm (1)
PE6P..RS3108X	0,45		11,7 - 11,8
+ .. PA649		0,75	12,1 - 12,2
		0	9,3 - 9,4
		0,22	10,2 - 10,4

Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Distributor-type Fuel-injection Pumps

WPP 001/4 PEU 2,3 b1

1. Edition

En

VE 4/10 F 2125 R 62-2 0 460 404 018
VE 4/10 F 2125 R 62-4 0 460 404 022

supersedes
company Peugeot
engine: XD 2 S

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment see VDT-W-460/.

Pre-stroke setting – mm

Testoil-ISO 4113

1. Settings

	Rot. speed rev/min	Settings		Charge-air press. bar (kgf/cm²)	Difference in delivery cm³
1.1 Timing device travel	1400	5,0- 5,4	mm	0,67	
1.2 Supply pump pressure	1400	5,2- 5,8	bar (kgf/cm²)	0,67	
1.3 Full-load delivery without charge-air pressure	500	33,5-34,5	cm³/1000 strokes	0	
Full-load delivery with charge-air pressure	1250	48,7-49,7	cm³/1000 strokes	0,67	3,0
1.4 Idle speed regulation	425	8,0-12,0	cm³/1000 strokes	0	2,5
1.5 Start	100	min. 50,0	cm³/1000 strokes	0	
1.6 Full-load speed regulation	2425	17,0-23,0	cm³/1000 strokes	0,67	
1.7 Load-dependent start of delivery	1400	-		0,67	

2. Test Specifications

checking values in brackets ( )

2.1 Timing device LDA=0,67bar	n = rev/min	750	1400	2000
	mm	1,4-2,2(1,1-2,5)	(4,5-5,9)	7,8-8,6(7,5-8,9)
2.2 Supply pump LDA=0,67bar	n = rev/min	400		2000
	bar (kgf/cm²)	2,1-2,7		7,1-7,7
Overflow delivery	n = rev/min	500		2125
	cm³/10 s	55-138(40-153)		55-138(40-153)

2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm³/1000 strokes		Charge-air press. bar (kgf/cm²)
End stop	2550	5,0-11,0	(4,0-12,0)	0,67
	2425		(16,0-24,0)	0,67
	2000	41,8-44,2	(40,7-45,3)	0,67
	1250		(46,9-51,5)	0,67
	* 750	39,5-40,5	(37,7-42,3)	0,25
	500		(31,0-37,0)	0
switch-off	2075	0		
Idle stop	425		(6,0-14,0)	
	460-590	0		
End stop	300	min. 50		
	420	max. 40		

2.4 Solenoid

max. cut-in voltage xxx min. 10 V

test voltage xxxxxxxxx rated voltage 12V.

3. Dimensions

Designation	for assembly and adjustment mm
K	MaB K 1
KF	5,7-5,9
MS	0,9-1,1
SVS	max. 4,5
X_A K	20,2-22,2
X_B I	9,5-12,8

Observations

* Manifold-pressure compensator stroke = 3,5 mm. Correction at the adjusting nut. (46)

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BOSCH

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 VOL 4,5a
1. Edition
En

PES 4 MW 100/320 RS 1102 RQV 300-1150 MW 39-1
0403 444 103

supersedes
company Volvo-BM
engine: TD45
70 KW (95 PS)

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,80-2,90 (2,75-2,95) mm (from BDC) RW 9 - 12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	$10,3^{+0,1}$	7,4 - 7,6	0,35(0,6)			
300	6,5-6,6	1,3 - 1,7	0,35(0,55)			
1000	$10,3^{+0,1}$	-	0,55(0,7)			

Adjust the fuel delivery from each outlet according to the values in [ ].

B. Governor Settings

Upper rated speed: Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min (1a) (2a) 3	Intermediate rated speed: Degree of deflection of control lever 4	rev/min 5	Control rod travel mm (4) 6	Lower rated speed: Degree of deflection of control lever 7	rev/min 8	Control rod travel mm (3) 9	Sliding sleeve travel (1): rev/min 10	mm 11
max.	1150	15,2-17,8				ca. 11	300	5,6-5,7		
	1400	0 - 1,0					100	min.7,3		
ca. 46	10,0	1190-1200				320-520 (3a)				
	4,0	1230-1260								

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) (2): rev/min 1	cm³/1000 strokes 2	Rotational-speed limitation (2b) intermediate speed (4a): rev/min 3	Fuel delivery characteristics (5a) high idle speed (5b): rev/min 4	cm³/1000 strokes 5	Starting fuel delivery (6) idle switching point: rev/min 6	cm³/1000 strokes 7	Torque-control travel (5): rev/min 8	Control rod travel mm 9
700	74,0 - 76,0 (72,0 - 78,0)	1190-1200*	1000	81,0 - 85,0 (79,0 - 87,0)	100	min. 140,0		
						100-220(80-250)		

Checking values in brackets

* 1 mm less control rod travel than col. 2

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Test Specifications Fuel Injection Pumps and Governors

(1) WPP 001/4 VOL 4,5b
1. Edition
En

PES 4 MW 100/320 RS 1102 RQV 300-1100 MW 39

o 403 444 101

supersedes
company: Volvo-BM
engine: TD45
85 KW (116 PS)

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,80 - 2,90 (2,75 - 2,95) mm (from BDC) RW 9,0 - 12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	11,0+0,1	9,5 - 9,7	0,35(0,6)			
300	5,6-5,7	0,95- 1,35	0,35(0,55)			
1000	11,0+0,1	9,4 - 9,8	0,55(0,7)			

Adjust the fuel delivery from each outlet according to the values in [ ].

B. Governor Settings

Upper rated speed: Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min (1a) (2a) 3	Intermediate rated speed: Degree of deflection of control lever 4	rev/min 5	Control rod travel mm (4) 6	Lower rated speed: Degree of deflection of control lever 7	rev/min 8	Control rod travel mm (3) 9	Sliding sleeve travel (1): rev/min 10	mm 11
max.	1100	15,2 - 17,8				ca. 11	300	5,6-5,7		
	1350	0 - 1,0					100	min.7,2		
ca. 46	10,0	1140-1150								
	4,0	1190-1220				(3a)		380-440 = 2,0		

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) (2): rev/min 1	cm³/1000 strokes 2	Rotational-speed limitation intermediate speed (2b) (4a): rev/min 3	Fuel delivery characteristics high idle speed (5a) (5b): rev/min 4	cm³/1000 strokes 5	Starting fuel delivery idle switching point (6): rev/min 6	cm³/1000 strokes 7	Torque-control travel (5): rev/min 8	Control rod travel mm 9
700	95,0-97,0 (93,0-99,0)	1140-1150*	1000	94,0- 98,0 (92,0-100,0)	100	min. 140,0		
						100-220 (80-250)		

Checking values in brackets

* 1 mm less control rod travel than col. 2

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Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 BAO 21,2 a
1. Edition
En

PE 8 P 130 A 520/4 RS 3085 RQV 400-750 PA 618-1

supersedes
company Baudouin
engine 8 P 15
467 kW (635 PS)

1-2-4-5-6-3-7-8 je 45 ° ± 0,5 ° (± 0,75 °)

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	8,5-8,6	21,0-21,4	0,5(0,9)			
400	3,9-4,1	2,5 - 3,1	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in [ ].

B. Governor Settings

Upper rated speed: Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min (1a) (2a) 3	Intermediate rated speed: Degree of deflection of control lever 4	rev/min 5	Control rod travel mm (4) 6	Lower rated speed: Degree of deflection of control lever 7	rev/min 8	Control rod travel mm (3) 9	Sliding sleeve travel (1): rev/min 10	mm 11
max.	830	15,2-17,8	-	-	-	ca. 16	100	min. 5,6	350	0 - 0,2
							400	3,9-4,1	455	
ca.48	7,5	750-755					775-785=2,0		bis	2,0
	4,0	775-785							640	
	900	0 - 1,0							700	2,0-3,8
						355-455 (3a)			750	5,1

Torque control travel s = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) (2): rev/min 1	cm³/1000 strokes 2	Rotational-speed limitation intermediate speed (2b) (4a): rev/min 3	Fuel delivery characteristics high idle speed (5a) (5b): rev/min 4	cm³/1000 strokes 5	Starting fuel delivery idle switching point (6): rev/min 6	cm³/1000 strokes 7	Torque-control travel (5): rev/min 8	Control rod travel mm 9
700	210,0-214,0 (207,0-217,0)	750-755*	-	-	100	19,5-21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

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Test Specifications Distributor-type Fuel-injection Pumps

WPP 001/4 VWW 1,6 n

2. Edition

En

VE 4/9 F 2500 R 16-5
R 16-5 P

supersedes 4.82
company VW
engine 1,6 L

0 460 494 032
0 460 494 033

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment see VDT-W-460/..

Pre-stroke setting --- mm

Testoil-ISO 4113

1. Settings

	Rot speed rev/min	Settings		Charge-air press. bar (kgf/cm²)	Difference in delivery cm³
1 1 Timing device travel	1500	4,6-5,0	mm		
1 2 Supply pump pressure	1500	4,5-5,1	bar (kgf/cm²)		
1 3 Full-load delivery without charge-air pressure	1500	33,0-34,0	cm³/1000 strokes		2,5 (3,0)
Full-load delivery with charge-air pressure	--	--	cm³/1000 strokes		
1 4 Idle speed regulation	415	7,0-11,0	cm³/1000 strokes		2,5 (3,0)
1 5 Start	100	min. 38,0	cm³/1000 strokes		
1 6 Full-load speed regulation	2450	14,0-20,0	cm³/1000 strokes		
1 7 Load-dependent start of delivery	--	--			

2. Test Specifications

checking values in brackets ( )

2 1 Timing device	n = rev/min	1000	1500	2100
	mm	2,4-3,2 (2,1-3,5)	(4,1-5,5)	7,0-7,8 (6,7-8,1)
2 2 Supply pump	n = rev/min	400		2250
	bar (kgf/cm²)	1,7-2,3		6,3-6,9
Overflow delivery	n = rev/min	600		
	cm³/10 s	55-125 (40-140)		55-125 (40-140)

2 3 Fuel deliveries

Speed control lever	Rot speed rev/min	Fuel delivery cm³/1000 strokes		Charge-air press bar (kgf/cm²)
End stop	2540	5,5-12,5	(5,0-13,0)	
	2450		(13,0-21,0)	
	2250	28,8-30,8	(27,5-32,1)	
	1500		(31,2-35,8)	
	600	21,5-24,5	(20,0-26,0)	
switch-off elect.	400	bei 2,5 V	0	
Idle stop	1200	max. 4,0		
	600	max. 6,0		
	415		(5,0-13,0)	
End stop	400	min. 18,0		
	500	max. 23,5		

2.4 Solenoid — max. cut-in voltage xxx min. 10 V
xxxxxxxxxxxrated voltage 12V.

3. Dimensions

Designation	for assembly and adjustment mm
K	3,2-3,4
KF	5,7-5,9
MS	1,3-1,5
SVS	max. 4,8
* FH	1,8-2,4
XK A	18,6-20,6
XL B	9,1-12,8

Observations

*operating stroke (KSB)

H1

Test Specifications Distributor-type Fuel-injection Pumps

WPP 001/4 VWW 1,6 a
3. Edition

En

VE 4/9 F 2400 R 66-3
R 66-7

supersedes 6.82
company: VW
engine:

0 460 494 052
0 460 494 075

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment see VDT-W-460/..

Testoil-ISO 4113

Pre-stroke setting mm

1. Settings

	Rot. speed rev/min	Settings		Charge-air press. bar (kgf/cm²)	Difference in delivery cm³
1 1 Timing device travel	1500	2,9-3,3	mm		
1 2 Supply pump pressure	1500	4,9-5,5	bar (kgf/cm²)		
1 3 Full-load delivery without charge-air pressure	1500	33,0-34,0	cm³/1000 strokes		2,5 (3,0)
Full-load delivery with charge-air pressure	-	-	cm³/1000 strokes		
1 4 Idle speed regulation	475	6,0-10,0	cm³/1000 strokes		2,5 (3,0)
1 5 Start	100	min. 38,0	cm³/1000 strokes		
1 6 Full-load speed regulation	2600	11,0-17,0	cm³/1000 strokes		
1 7 Load-dependent start of delivery	-	-			

2. Test Specifications

checking values in brackets ( )

2 1 Timing device	n = rev/min	1000	1500	2400
	mm	1,3-2,1 (1,0-2,4)	(2,4-3,8)	6,1-6,9 (5,8-7,2)
2 2 Supply pump	n = rev/min	400		2400
	bar (kgf/cm²)	2,1-2,7		7,0-7,6
Overflow delivery	n = rev/min	500		2400
	cm³/10 s	55-138 (40-153)		55-138 (40-153)

2 3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm³/1000 strokes	Charge-air press bar (kgf/cm²)
End stop	2700	2,5- 9,5 (2,0-10,0)	
	2600	(10,0-18,0)	
	2400	27,5-29,5 (26,2-30,8)	
	1500	(31,2-35,8)	
	600	21,5-24,5 (20,0-26,0)	
switch-off elect.	400	0	
Idle stop	1200	max. 5,0	
	650	max. 6,0	
	475	(4,0-12,0)	
End stop	400	min. 18,0	
	500	max. 23,5	

2 4 Solenoid — max. cut-in voltage xxx min. 10,0 V xxxxxxxxxxrated voltage 12V.

3. Dimensions

for assembly and adjustment

Designation	mm
K	3,2-3,4
KF	5,7-5,9
MS	1,3-1,5
SVS	max.2,5
* FH	1,8-2,4
XK[A]	18,4-20,4
XL[B]	9,1-12,9

Observations

*operating stroke (KSB)

H2

Test Specifications Distributor-type Fuel-injection Pumps

WPP 001/4 VWW 1,6 W

1. Edition

En

VE 4/9 F 2400 R 66-4

0 460 494 073

supersedes _

company VWW

engine. Audi 4000 USA

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment see VDT-W-460/ .

Pre-stroke setting – mm

Testoil-ISO 4113

1. Settings	Rot. speed rev/min	Settings		Charge-air press. bar (kgf/cm²)	Difference in delivery cm³
1.1 Timing device travel	1500	2,9- 3,3	mm		
1.2 Supply pump pressure	1500	4,9- 5,5	bar (kgf/cm²)		
1.3 Full-load delivery without charge-air pressure	1500	30,0-31,0	cm³/1000 strokes		2,5(3-0)
Full-load delivery with charge-air pressure	–	–	cm³/1000 strokes		
1.4 Idle speed regulation	475	7,0-11,0	cm³/1000 strokes		2,5(3,0)
1.5 Start	100	min. 38,0	cm³/1000 strokes		
1.6 Full-load speed regulation	2600	11,0-17,0	cm³/1000 strokes		
1.7 Load-dependent start of delivery	–	–			

2. Test Specifications

checking values in brackets ( )

2.1 Timing device	n = rev/min	1000	1500	2400
	mm	1,3-2,1(1,0-2,4)	(2,4-3,8)	6,1-6,9(5,8-7,2)
2.2 Supply pump	n = rev/min	400		2400
	bar (kgf/cm²)	2,1-2,7		7,0-7,6
Overflow delivery	n = rev/min	500		2400
	cm³/10 s	55-138(40-153)		55-138(40-153)

2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm³/1000 strokes	Charge-air press bar (kgf/cm²)
End stop	2700	2,5- 9,5 (2,0-10,0)	
	2600	(10,0-18,0)	
	2400	26,0-28,0 (24,7-29,3)	
	1500	(28,2-32,8)	
	600	17,5-20,5 (16,0-22,0)	
switch-off elect.	400	0	
Idle stop	475	(5,0-13,0)	
	650	max. 6,0	
	1200	max. 4,0	
End stop	400	min.13,5	
	500	max.19,5	

2.4 Solenoid — max. cut-in voltage xxx min. 10 V xxxxxxxxxxrated voltage 12V.

3. Dimensions

for assembly and adjustment

Designation	mm
K	3,2-3,4
KF	5,7-5,9
MS	1,3-1,5
SVS	max. 2,5
* FH	1,8-2,4
AK	18,4-20,4
KL	10,4-12,-

Observations

*operating stroke (KSB)

H3

Test Specifications Distributor-type Fuel-injection Pumps

46

WPP 001/4 VWW 1,6 c

3. Edition

En

VE 4/9 F 2400 R 66-13

0 460 494 084

superseded 6.82

company VWW

engine Passat Autom.

Overflow temperature 45° C

Testoil-ISO 4113

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test instructions and Test Equipment see VDT-W-460/ .

Pre-stroke setting – mm

1. Settings

	Rot. speed rev/min	Settings		Charge-air press. bar (kgf/cm²)	Difference in delivery cm³
1 1 Timing device travel	1500	2,9- 3,3	mm		
1 2 Supply pump pressure	1500	4,9- 5,5	bar (kgf/cm²)		
1 3 Full-load delivery without charge-air pressure	1500	33,0-34,0	cm³/1000 strokes		2,5(3,0)
Full-load delivery with charge-air pressure	--	--	cm³/1000 strokes		
1 4 Idle speed regulation	450	6,0-10,0	cm³/1000 strokes		2,5(3,0)
1 5 Start	100	min.38,0	cm³/1000 strokes		
1 6 Full-load speed regulation	2600	11,0-17,0	cm³/1000 strokes		
1 7 Load-dependent start of delivery	--	--			

2. Test Specifications

checking values in brackets ( )

2 1 Timing device	n = rev/min	1000	1500	2400
	mm	1,3-2,1(1,0-2,4)	(2,4-3,8)	6,1-6,9(5,8-7,2)
2 2 Supply pump	n = rev/min	400		2400
	bar (kgf/cm²)	2,1-2,7		7,0-7,6
Overflow delivery	n = rev/min	500		2400
	cm³/10 s	55-138(40-153)		55-138(40-153)

2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm³/1000 strokes	Charge-air press. bar (kgf/cm²)
End stop	2700	2,5- 9,5 (2,0-10,0)	
	2600	(10,0-18,0)	
	2400	27,5-29,5 (26,2-30,8)	
	1500	(31,2-35,8)	
	600	21,5-24,5 (20,0-26,0)	
switch-off			
mech.	2400	0	
elektr.	400	0	
Idle stop	1200	max. 7,0	
	650	max. 5,0	
	475	(4,0-12,0)	
End stop	400	min. 18,0	
	500	max. 23,5	

2.4 Solenoid — max. cut-in voltage xxx min. 10 V; test voltage xxxxxxxxxx rated voltage 12V.

3. Dimensions

Designation	for assembly and adjustment mm
K	3,2-3,4
KF	5,7-5,9
MS	1,3-1,5
SVS	max.2,5
* FH	1,8-2,4
XK	18,4-20,4
XL	10,4-12,8

Observations

*operating stroke (KSB)

H4

11.82

Test Specifications Distributor-type Fuel-injection Pumps

WPP 001/4 VWW 1,6 K
2. Edition
En

Testoil-ISO 4113

VE 4/9 F 2250 R 79
R 79 P
0 460 494 064
0 460 494 065

supersedes 6.82
company VWW
engine 086-T-1,6

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment see VDT-W-460/..

Pre-stroke setting -- mm

1. Settings

	Rot. speed rev/min	Settings		Charge-air press. bar (kgf/cm²)	Difference in delivery cm³
1.1 Timing device travel	1500	3,3-3,7	mm	0,75	
1.2 Supply pump pressure	1500	5,5-6,1	bar (kgf/cm²)	0,75	
1.3 Full-load delivery without charge-air pressure	600	22,5-23,5	cm³/1000 strokes	0	2,5 (3,0)
Full-load delivery with charge-air pressure	1500	42,5-43,5	cm³/1000 strokes	0,75	
1.4 Idle speed regulation	475	7,0-11,0	cm³/1000 strokes	0	2,5 (3,0)
1.5 Start	100	min. 38,0	cm³/1000 strokes	0	
1.6 Full-load speed regulation	2525	9,0-15,0	cm³/1000 strokes	0,75	
1.7 Load-dependent start of delivery	--	--			

2. Test Specifications

checking values in brackets ( )

2.1 Timing device	n = rev/min	1000	1500	2250
LDA=0,75 bar	mm	1,3-2,1 (1,0-2,4)	(2,8-4,2)	6,0-6,8 (5,7-7,1)
2.2 Supply pump	n = rev/min	600		2250
LDA=0,75 bar	bar (kgf/cm²)	3,3-3,9		7,4-8,0
Overflow delivery	n = rev/min	600		2250
	cm³/10 s	55-125 (40-140)		55-125 (40-140)

2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm³/1000 strokes		Charge-air press. bar (kgf/cm²)
End stop	2730-2870	0		0,75
	2525		(8,0-16,0)	0,75
	2250	38,0-40,0	(36,7-41,3)	0,75
	1500		(40,7-45,3)	0,75
	* 1000	32,5-33,5	(30,0-36,0)	0,3
	600		(20,0-26,0)	0
switch-off elect.	400	0		
Idle stop	1200	max. 5,0		
	475		(5,0-13,0)	
End stop	400	min. 21		
	500	max. 29		

2.4 Solenoid — max. cut-in voltage xxx min. 10,0 V
test voltage xxxxxx rated voltage 12V.

3. Dimensions

Designation	for assembly and adjustment mm
K	3,2-3,4
KF	5,7-5,9
MS	1,2-1,4
SVS	4,4
XK A	18,4-20,4
XL B	10,0-13,6

Observations

* Manifold-pressure compensator stroke = 4,0 mm. Correction at the adjusting nut.(46)

H5

Test Specifications Distributor-type Fuel-injection Pumps

WPP 001/4 VWW 1,6L 1
2. Edition
En

VE 4/9 F 2250 R 79-1
R 79-1 P

0 460 494 100
0 460 494 101

supersedes 6.82
company VWH
engine 086 T-1,6-Autom.

Overflow temperature 45° C

Testoil-ISO 4113

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment see VDT-W-460/

Pre-stroke setting -- mm

1. Settings

	Rot speed rev/min	Settings		Charge-air press. bar (kgf/cm²)	Difference in delivery cm³
1 1 Timing device travel	1500	3,3 - 3,7	mm	0,75	
1 2 Supply pump pressure	1500	5,5 - 6,1	bar (kgf/cm²)	0,75	
1 3 Full-load delivery without charge-air pressure	600	22,5-23,5	cm³/1000 strokes	0	2,5(3,0)
Full-load delivery with charge-air pressure	1500	42,5-43,5	cm³/1000 strokes	0,75	
1 4 Idle speed regulation	450	7,0-11,0	cm³/1000 strokes	0	2,5(3,0)
1 5 Start	100	min. 38,0	cm³/1000 strokes	0	
1 6 Full-load speed regulation	2525	9,0-15,0	cm³/1000 strokes	0,75	
1 7 Load-dependent start of delivery	--	--			

2. Test Specifications

checking values in brackets ( )

2.1 Timing device	n = rev/min	1000	1500	2250
LDA=0,75 bar	mm	1,3-2,1 (1,0-2,4)	(2,8-4,2)	6,0-6,8 (5,7-7,1)
2 2 Supply pump	n = rev/min	1600		2250
LDA=0,75 bar	bar (kgf/cm²)	3,3-3,9		7,4-8,0
Overflow delivery	n = rev/min	600		2250
	cm³/10 s	55-125 (40-140)		55-125 (40-140)

2.3 Fuel deliveries

Speed control lever	Rot speed rev/min	Fuel delivery cm³/1000 strokes	Charge-air press. bar (kgf/cm²)
End stop	2730-2870	0	0,75
	2525	(8,0-16,0)	0,75
	2250	38,0-40,0 (36,7-41,3)	0,75
	1500	(40,7-45,3)	0,75
	+1000	32,5-33,5 (30,0-36,0)	0,3
	600	(20,0-26,0)	0
switch-off mech.	2250	0	
elektr.	400	0	
Idle stop	1200	max. 10,0	0
	450	(5,0-13,0)	
End stop	400	min. 21	
	500	max. 29	

2 4 Solenoid — max. cut-in voltage xxxxxxxxx test voltage — xxx min. 10,0 V rated voltage 12V.

3. Dimensions

for assembly and adjustment mm

Designation	
K	3,2-3,4
KF	5,7-5,9
MS	1,2-1,4
SVS	max.4,4
AXK	18,4-20,4
BXL	10,4-12,7

Observations

+ Manifold-pressure compensator stroke = 4,0 mm. Correction at the adjusting nut.(46)

H6

H6

Test Specifications Distributor-type Fuel-injection Pumps

WPP 001/4 VWW 1,6 i
3. Edition
En

VE 4/9 F 2250 R 78-1 (P)
0 460 404 098; 099

supersedes 6.82
company VWW
engine 086T-1,6-Automat.

Overflow temperature 45° C

Testoil-ISO 4113

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment see VDT-W-460/..

Pre-stroke setting --mm

1. Settings

	Rot speed rev/min	Settings		Charge-air press. bar (kgf/cm²)	Difference in delivery cm³
1 1 Timing device travel	1500	3,8-4,2	mm	0,75	
1 2 Supply pump pressure	1500	5,6-6,1	bar (kgf/cm²)	0,75	
1 3 Full-load delivery without charge-air pressure	600	23,5-24,5	cm³/1000 strokes	0	2,5 (3,0)
Full-load delivery with charge-air pressure	1500	43,5-44,5	cm³/1000 strokes	0,75	
1 4 Idle speed regulation	450	7,0-11,0	cm³/1000 strokes	0	2,5 (3,0)
1 5 Start	100	min. 38,0	cm³/1000 strokes	0	
1 6 Full-load speed regulation	2525	9,0-15,0	cm³/1000 strokes	0,75	
1 7 Load-dependent start of delivery	--	--			

2. Test Specifications

checking values in brackets ( )

2 1 Timing device	n = rev/min	1000	1500	2250
LDA=0,75 bar	mm	1,8-2,6 (1,5-2,9)	(3,3-4,7)	6,1-6,9 (5,8-7,2)
2 2 Supply pump	n = rev/min	1600		2250
LDA=0,75 bar	bar (kgf/cm²)	3,3-3,9		7,4-8,0
Overflow delivery	n = rev/min	600		2250
	cm³/10 s	55-125 (40-140)		55-125 (40-140)

2 3 Fuel deliveries

Speed control lever	Rot speed rev/min	Fuel delivery cm³/1000 strokes		Charge-air press bar (kgf/cm²)
End stop	2730-1870	0		0,75
	2525		(8,0-16,0)	0,75
	2250	38,5-40,5	(37,2-41,8)	0,75
	1500		(41,7-46,3)	0,75
	* 1000	33,5-34,5	(31,0-37,0)	0,3
	600		(21,0-27,0)	0
mech. switch-off	2250	0		
elektr.	400	0		
Idle stop	1200	max. 10,0		0
	450		(5,0-13,0)	
End stop	400	min. 22		
	500	max. 30		

2.4 Solenoid — max. cut-in voltage xxx min. 10,0 V
xxxxxxxxxxx rated voltage 12V.

3. Dimensions

Designation	for assembly and adjustment mm
K	3,2-3,4
KF	5,7-5,9
MS	1,2-1,4
SVS	max.4,4
XK	18,4-20,4
XL	10,4-12,7

Observations
* Manifold-pressure compensator stroke = 4,0 mm. Correction at the adjusting nut.(46)

H7

BOSCH Geschäftsbereich KH Kundendienst Kfz-Ausrüstung

Test Specifications Distributor-type Fuel-injection Pumps

WPP 001/4 VWW 1,6 h
3. Edition
En

VE 4/9 F 2250 R 78
0 460 494 062/063

supersedes 6.82
company: VWW
engine: 086T-1,6

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment see VDT-W-460/..

Pre-stroke setting -- mm

Testoil-ISO 4113

1. Settings

	Rot speed rev/min	Settings		Charge-air press. bar (kgf/cm²)	Difference in delivery cm³
1 1 Timing device travel	1500	3,8-4,2	mm	0,75	
1 2 Supply pump pressure	1500	5,6-6,1	bar (kgf/cm²)	0,75	
1 3 Full-load delivery without charge-air pressure	600	23,5-24,5	cm³/1000 strokes	0	
Full-load delivery with charge-air pressure	1500	43,5-44,5	cm³/1000 strokes	0,75	2,5 (3,0)
1 4 Idle speed regulation	475	7,0-11,0	cm³/1000 strokes	0	2,5 (3,0)
1 5 Start	100	min. 38,0	cm³/1000 strokes	0	
1 6 Full-load speed regulation	2525	9,0-15,0	cm³/1000 strokes	0,75	
1 7 Load-dependent start of delivery	--	--			

2. Test Specifications

checking values in brackets ( )

2 1 Timing device LDA=0,75 bar	n = rev/min	1000	1500	2250
	mm	1,8-2,6 (1,5-2,9)	(3,3-4,7)	6,1-6,9 (5,8-7,2)
2 2 Supply pump LDA=0,75 bar	n = rev/min	600		2250
	bar (kgf/cm²)	3,3-3,9		7,4-8,0
Overflow delivery	n = rev/min	600		2250
	cm³/10 s	55-125 (40-140)		55-125 (40-140)

2 3 Fuel deliveries

Speed control lever	Rot speed rev/min	Fuel delivery cm³/1000 strokes		Charge-air press bar (kgf/cm²)
End stop	2730-1870	0		0,75
	2525	38,5-40,5	(8,0-16,0)	0,75
	2250	38,5-40,5	(37,2-41,8)	0,75
	1500		(41,7-46,3)	0,75
	* 1000	33,5-34,5	(31,0-37,0)	0,3
	600		(21,0-27,0)	0
switch-off mech.	2250	0		
elektr.	400	0		
Idle stop	1200	max. 5,0		
	475		(5,0-13,0)	
End stop	400	min. 22,0		
	500	max. 30,0		

2.4 Solenoid

max. cut-in voltage xxx min. 10 V
xxxxxxxxxxxxxx rated voltage 12V.

3. Dimensions

Designation	for assembly and adjustment mm
K	3,2-3,4
KF	5,7-5,9
MS	1,2-1,4
SVS	4,4
A XK	18,4-20,4
B XL	10,0-13,6

Observations

* Manifold-pressure compensator stroke = 4,0 mm. Correction at the adjusting nut.(46)

H8

H8

⑥

Test Specifications Distributor-type Fuel-injection Pumps

46

WPP 001/4 PEU 2,3 b

1. Edition

En

VE 4/10 F 2075 R 62
R 62-3

0 460 404 011
0 460 404 021

supersedes
company: Peugeot
engine: XD 2 S

Overflow temperature 45° C

Testoil-ISO 4113

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment see VDT-W-460/..

Pre-stroke setting – mm

1. Settings	Rot. speed rev/min	Settings		Charge-air press. bar (kgf/cm²)	Difference in delivery cm³
1.1 Timing device travel	1400	5,0- 5,4	mm	0,67	
1.2 Supply pump pressure	1400	5,2- 5,8	bar (kgf/cm²)	0,67	
1.3 Full-load delivery without charge-air pressure	500	33,5-34,5	cm³/1000 strokes	0	
Full-load delivery with charge-air pressure	1250	48,7-49,7	cm³/1000 strokes	0,67	3,0
1.4 Idle speed regulation	375	12,0-16,0	cm³/1000 strokes	0	2,5
1.5 Start	100	min. 50,0	cm³/1000 strokes	0	
1.6 Full-load speed regulation	2400	13,0-19,0	cm³/1000 strokes	0,67	
1.7 Load-dependent start of delivery	1400	-		0,67	

2. Test Specifications

checking values in brackets ( )

2.1 Timing device LDA=0,67 bar	n = rev/min	750	1400	2000
	mm	1,4-2,2(1,1-2,5)	(4,5-5,9)	7,8-8,6(7,5-8,9)
2.2 Supply pump LDA=0,67 bar	n = rev/min	400		2000
	bar (kgf/cm²)	2,1-2,7		7,1-7,7
Overflow delivery	n = rev/min	500		2075
	cm³/10 s	55-138(40-153)		55-138(40-153)

2.3 Fuel deliveries

Speed control lever	Rot speed rev/min	Fuel delivery cm³/1000 strokes		Charge-air press. bar (kgf/cm²)
End stop	2500	3,0- 9,0	(2,0-10,0)	0,67
	2400		(12,0-20,0)	0,67
	2000	41,8-44,2	(40,7-45,3)	0,67
	1250		(46,9-51,5)	0,67
	* 750	39,5-40,5	(37,7-42,3)	0,25
	500		(31,0-37,0)	0
switch-off	2075	0		
Idle stop	375		(10,0-18,0)	
	420-480	0		
	1250	max. 2,0		
End stop	300	min. 50		
	420	max. 40		

2.4 Solenoid	max. cut-in voltage	xxx min. 10 V
	test voltage xxxxxxxxx	rated voltage 12V.

3. Dimensions

Designation	for assembly and adjustment mm
K	Maß K 1
KF	5,7-5,9
MS	0,9-1,1
SVS	max.4,6
XK	20,2-22,2
XL	9,5-12,8

Observations
* Manifold-pressure compensator stroke = 3,5 mm. Correction at the adjusting nut. (46)

H9

Test Specifications Distributor-type Fuel-injection Pumps

WPP 001/4 VWW 2,0 f
2. Edition
En

VE 5/10 F 2250 L 80-1

0 460 405 023

supersedes 6.82
company: Audi 100
engine: 153 T-A

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment see VDT-W-460/..

Pre-stroke setting 0,2 mm ± 0,02 (0,04) mm

Testoil-ISO 4113

1. Settings	Rot. speed rev/min	Settings		Charge-air press. bar (kgf/cm²)	Difference in delivery cm³
1.1 Timing device travel	1500	3,1 - 3,5	mm	0,75	
1.2 Supply pump pressure	1500	5,5 - 6,1	bar (kgf/cm²)	0,75	
1.3 Full-load delivery without charge-air pressure	500	21,5 - 22,5	cm³/1000 strokes	0	2,5(3,0)
Full-load delivery with charge-air pressure	1500	43,5 - 44,5	cm³/1000 strokes	0,75	
1.4 Idle speed regulation	375	6,0 - 10,0	cm³/1000 strokes	0	2,5(3,0)
1.5 Start	100	min. 50,0	cm³/1000 strokes	0	
1.6 Full-load speed regulation	2525	9,0 - 15,0	cm³/1000 strokes	0,75	
1.7 Load-dependent start of delivery	-	-			

2. Test Specifications

checking values in brackets ( )

2.1 Timing device LDA=0,75 bar	n = rev/min	850	1500 2250
	mm	1,1 - 1,9 (0,8 - 2,2)	(2,6 - 4,0) 5,4-6,2 (5,1-6,5)
2.2 Supply pump LDA=0,75 bar	n = rev/min	500	2250
	bar (kgf/cm²)	3,2 - 3,8	7,3 - 7,9
Overflow delivery	n = rev/min	500	2250
	cm³/10 s	55 - 138 (40 - 153)	55 - 138 (40 - 153)

2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm³/1000 strokes		Charge-air press. bar (kgf/cm²)
End stop	2680-2820	0		0,75
	2525		(8,0 - 16,0)	0,75
	2250	37,0-39,0	(35,7- 40,4)	0,75
	1500		(41,7- 46,3)	0,75
	* 850	32,5-33,5	(30,0- 36,0)	0,30
	500		(19,0- 25,0)	0
switch-off	2250	0		
elect.	400	0		
Idle stop	375		(4,0 - 12,0)	
	450	max. 2,5		
End stop	400	min. 18		
	500	max. 25		

2.4 Solenoid — max. cut-in voltage / test voltage

3. Dimensions

Designation	for assembly and adjustment mm
K	-
KF	5,7-5,9
MS	1,7-1,9
SVS	max.4,2
*K	18,5 - 20,5
*L	10,3 - 13,2

Observations

*Manifold-pressure compensator stroke = 3,6 mm. Correction at the adjusting nut (46)

H10

BOSCH Geschäftsbereich KH Kundendienst. Kfz-Ausrüstung.

⑥ Test Specifications Distributor-type Fuel-injection Pumps

46

WPP 001/4 VWW 2,0 g

1. Edition

En

VE 5/10 F 2250 L 80

0 460 405 017

supersedes –
company: Audi 100 T
engine: 153 T-A

Overflow temperature 45° C

Testoil-ISO 4113

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment see VDT-W-460/..

Pre-stroke setting 0,2 mm ±0,02 (0,04) mm

1. Settings	Rot. speed rev/min	Settings		Charge-air press. bar (kgf/cm²)	Difference in delivery cm³
1.1 Timing device travel	1500	3,1 - 3,5	mm	0,75	
1.2 Supply pump pressure	1500	5,5 - 6,1	bar (kgf/cm²)	0,75	
1.3 Full-load delivery without charge-air pressure	500	21,5 - 22,5	cm³/1000 strokes	0	2,5 (3,0)
Full-load delivery with charge-air pressure	1500	43,5 - 44,5	cm³/1000 strokes	0,75	
1.4 Idle speed regulation	375	6,0 - 10,0	cm³/1000 strokes	0	2,5 (3,0)
1.5 Start	100	min. 50,0	cm³/1000 strokes	0	
1.6 Full-load speed regulation	2525	9,0 - 15,0	cm³/1000 strokes	0,75	
1.7 Load-dependent start of delivery	–	–			

2. Test Specifications

checking values in brackets ( )

2.1 Timing device LDA=0,75 bar	n = rev/min	850	1500	2250
	mm	1,1-1,9 (0,8-2,2)	(2,6-4,0)	5,4 - 6,2 (5,1-6,5)
2.2 Supply pump LDA=0,75 bar	n = rev/min	500		2250
	bar (kgf/cm²)	3,2 - 3,8		7,3 - 7,9
Overflow delivery	n = rev/min	500		2250
	cm³/10 s	55 - 138 (40 - 153)		55 - 138 (40 - 153)

2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm³/1000 strokes		Charge-air press. bar (kgf/cm²)
End stop	2680-2820	0		0,75
	2525		(8,0-16,0)	0,75
	2250	37,0-39,0	(35,7-40,3)	0,75
	1500		(41,7-46,3)	0,75
	* 850	32,5-33,5	(30,0-36,0)	0,30
	500		(19,0-25,0)	0
switch-off elect.	400	0		
Idle stop	375		(4,0-12,0)	
	450	max. 2,5		
End stop	400	min. 18		
	500	max. 25		

2.4 Solenoid — max. cut-in voltage / test voltage

3. Dimensions

Designation	for assembly and adjustment mm
K	–
KF	5,7 - 5,9
MS	1,7 - 1,9
SVS	max. 4,2
XK	18,5-20,5
XL	10,3-13,2

Observations

* Manifold-pressure compensator stroke = 3,6 mm. Correction at the adjusting nut (46)

H11

Test Specifications Distributor-type Fuel-injection Pumps

WPP001/4 VWW 2,0 e1

1. Edition

En

VE 5/10 F 2250 L 81

0 460 405 019

supersedes –
company: Audi 100 T
engine: 153 T-A

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment see VDT-W-460/..

Testoil-ISO 4113

Pre-stroke setting 0,2 mm ± 0,02 (0,04) mm

1. Settings	Rot. speed rev/min	Settings		Charge-air press. bar (kgf/cm²)	Difference in delivery cm³
1.1 Timing device travel	1500	3,1 - 3,5	mm	0,75	
1.2 Supply pump pressure	1500	5,5 - 6,1	bar (kgf/cm²)	0,75	
1.3 Full-load delivery without charge-air pressure	500	21,5 -22,5	cm³/1000 strokes	0	2,5(3,0)
Full-load delivery with charge-air pressure	1500	43,5 -44,5	cm³/1000 strokes	0,75	
1.4 Idle speed regulation	375	6,0 -10,0	cm³/1000 strokes	0	2,5(3,0)
1.5 Start	100	min. 50,0	cm³/1000 strokes	0	
1.6 Full-load speed regulation	2525	9,0 -15,0	cm³/1000 strokes	0,75	
1.7 Load-dependent start of delivery	–	–			

2. Test Specifications

checking values in brackets ( )

2.1 Timing device	n = rev/min	850	1500	2250
LDA=0,75bar	mm	1,1-1,9(0,8-2,2)	(2,6-4,0)	5,4-6,2 (5,1-6,5)
2.2 Supply pump	n = rev/min	500		2250
LDA=0,75 bar	bar (kgf/cm²)	3,2 - 3,8		7,3 - 7,9
Overflow delivery	n = rev/min	500		2250
	cm³/10 s	55 - 138 (40 - 153)		55 - 138 (40 - 153)

2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm³/1000 strokes	Charge-air press bar (kgf/cm²)
End stop	2680-2820	0	0,75
	2525	(8,0 - 16,0)	0,75
	2250	37,0-39,0(35,7- 40,3)	0,75
	1500	(41,7- 46,3)	0,75
	* 850	32,5-33,5(30,0-36,0)	0,30
	500	(19,0- 25,0)	0
switch-off elect.	400	0	
Idle stop	375	(4,0-12,0)	
	450	max. 2,5	
End stop	400	min. 18	
	500	max. 25	

2.4 Solenoid — max. cut-in voltage / test voltage

3. Dimensions

Designation	for assembly and adjustment mm
K	–
KF	5,7 - 5,9
MS	1,7 - 1,9
SVS	max. 4,2
ϑK	18,5-20,5
ϑL	10,3-13,2

Observations

Manifold-pressure compensator stroke = 3,6 mm.
Correction at the adjusting nut (46)

11.82

Test Specifications Distributor-type Fuel-injection Pumps

WPP 001/4 VWW 2,0 e

2. Edition

En

VE 5/10 F 2250 L 81-1

0 460 405 025

supersedes: 6.82
company: Audi 100 T
engine: 153 T-A

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test instructions and Test Equipment see VDT-W-460/..

Testoil-ISO 4113

Pre-stroke setting 0,2 mm ± 0,02 (0,04) mm

1. Settings	Rot. speed rev/min	Settings		Charge-air press. bar (kgf/cm²)	Difference in delivery cm³
1.1 Timing device travel	1500	3,1 - 3,5	mm	0,75	
1.2 Supply pump pressure	1500	5,5 - 6,1	bar (kgf/cm²)	0,75	
1.3 Full-load delivery without charge-air pressure	500	21,5 - 22,5	cm³/1000 strokes	0	2,5 (3,0)
Full-load delivery with charge-air pressure	1500	43,5 - 44,5	cm³/1000 strokes	0,75	
1.4 Idle speed regulation	375	6,0 - 10,0	cm³/1000 strokes	0	
1.5 Start	100	min. 50,0	cm³/1000 strokes	0	
1.6 Full-load speed regulation	2525	9,0 - 15,0	cm³/1000 strokes	0,75	
1.7 Load-dependent start of delivery	-	-			

2. Test Specifications

checking values in brackets ( )

2.1 Timing device	n = rev/min	850	1500	2250
LDA=0,75 bar	mm	1,1 - 1,9 (0,8-2,2)	(2,6-4,0)	5,4 - 6,2 (5,1 - 6,5)
2.2 Supply pump	n = rev/min	500		2250
LDA=0,75 bar	bar (kgf/cm²)	3,2-3,8		7,3-7,9
Overflow delivery	n = rev/min	500		2250
	cm³/10 s	55-138 (40-153)		55-138 (40-153)

2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm³/1000 strokes		Charge-air press. bar (kgf/cm²)
End stop	2680-2820	0		0,75
	2525		(8,0-16,0)	0,75
	2250	37,0-39,0	(35,7-40,3)	0,75
	1500		(41,7-46,3)	0,75
	* 850	32,5-33,5	(30,0-36,0)	0,30
	500		(19,0-25,0)	0
switchoff mech.	2250	0		
elektr.	400	0		
Idle stop	375		(4,0-12,0)	
	450	max. 2,5		
End stop	400	min. 18		
	500	max. 25		

2.4 Solenoid — max. cut-in voltage

test voltage

3. Dimensions

Designation	for assembly and adjustment mm
K	-
KF	5,7 - 5,9
MS	1,7 - 1,9
SVS	max. 4,2
A XK	18,5-20,5
B XL	10,3-13,2

Observations

*Manifold-pressure compensator stroke = 3,6 mm. Correction at the adjusting nut (46)

H13

H13

Test Specifications Distributor-type Fuel-injection Pumps

WPP 001/4 VW 1,5a
2. Edition

En

VE 4/9 F 2500 R 16-2
R 16-2 P

supersedes 4.82
company: VW
engine: EA 086/10

0 460 494 006
0 460 494 007

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment see VDT-W-460/..

Pre-stroke setting mm

Testoil-ISO 41.13

1. Settings

	Rot. speed rev/min	Settings		Charge-air press. bar (kgf/cm²)	Difference in delivery cm³
1.1 Timing device travel	1500	3,4-3,8	mm		
1.2 Supply pump pressure	1500	4,0-4,6	bar (kgf/cm²)		
1.3 Full-load delivery without charge-air pressure	1500	29,9-30,9	cm³/1000 strokes		2,5 (3,0)
Full-load delivery with charge-air pressure	--	--	cm³/1000 strokes		
1.4 Idle speed regulation	415	6,0-10,0	cm³/1000 strokes		2,5 (3,0)
1.5 Start	100	min. 39,0	cm³/1000 strokes		
1.6 Full-load speed regulation	2670	13,5-19,5	cm³/1000 strokes		
1.7 Load-dependent start of delivery	--	--			

2. Test Specifications

checking values in brackets ( )

2.1 Timing device	n = rev/min	1000	1500	2000
	mm	1,3-2,1 (1,0-2,4)	(2,9 - 4,3)	6,2-7,0 (5,9-7,3)
2.2 Supply pump	n = rev/min	400		2200
	bar (kgf/cm²)	1,4 - 2,0		5,9-6,5
Overflow delivery	n = rev/min	500		2500
	cm³/10 s	55-111 (40-126)		55-111 (40-126

2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm³/1000 strokes	Charge-air press bar (kgf/cm²)
End stop	2950	max. 4,0	
	2820	max. 8,0	
	2670	(12,5-20,5)	
	2500	25,7-27,7 (24,4-29,0)	
	1500	(28,1-32,7)	
	600	17,9-20,9 (15,4-22,4)	
switch-off elect.	400	bei 2,5 V 0	
Idle stop	1200	max. 3,0	
	415	(4,0-12,0)	
End stop	400	min. 15,0	
	500	max. 20,0	

2.4 Solenoid — max. cut-in voltage xxxmin. 10 V
xxx voltage xxxx rated voltage 12V.

3. Dimensions

Designation	for assembly and adjustment mm
K	3,2-3,4
KF	5,7-5,9
MS	1,3-1,5
SVS	max. 3,6
* FH	1,8-2,4
**	9,0-14,0
A	9,4-12,0
B	

Observations

* operating stroke (KSB)
**Two-piece control lever.
XK = 18,6-20,6 mm
XL = 9,1-12,8 mm

H14

Geschäftsbereich KH Kundendienst Kfz-Ausrüstung

H14

Test Specifications Distributor-type Fuel-injection Pumps

WPP 001/4 VWW 1,5b
2. Edition
En

VE 4/9 F 2500 R 16-4 (P)
0 460 494 030 (031)

supersedes 4. 82
company: VW
engine: EA 086/10

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment see VDT-W-460/..

Testoil-ISO 4113

Pre-stroke setting ---- mm

1. Settings

	Rot speed rev/min	Settings		Charge-air press. bar (kgf/cm²)	Difference in delivery cm³
1.1 Timing device travel	1500	3,4-3,8	mm		
1.2 Supply pump pressure	1500	4,0-4,6	bar (kgf/cm²)		
1.3 Full-load delivery without charge-air pressure	1500	29,9-30,9	cm³/1000 strokes		2,5 (3,0)
Full-load delivery with charge-air pressure	--	--	cm³/1000 strokes		
1.4 Idle speed regulation	475	6,0-10,0	cm³/1000 strokes		2,5 (3,0)
1.5 Start	100	min. 39,0	cm³/1000 strokes		
1.6 Full-load speed regulation	2670	13,5-19,5	cm³/1000 strokes		
1.7 Load-dependent start of delivery	--	--			

2. Test Specifications

checking values in brackets ( )

2.1 Timing device	n = rev/min	1000	1500	2200
	mm	1,3-2,1 (1,0-2,4)	(2,9-4,3)	6,2-7,0 (5,9-7,3)
2.2 Supply pump	n = rev/min	400		2200
	bar (kgf/cm²)	1,4-2,0		5,9-6,5
Overflow delivery	n = rev/min	500		2500
	cm³/10 s	55-111 (40-126)		55-111 (40-126)

2.3 Fuel deliveries

Speed control lever	Rot speed rev/min	Fuel delivery cm³/1000 strokes	Charge-air press. bar (kgf/cm²)
End stop	2950	max. 4,0	
	2820	max. 8,0	
	2670	(12,5-20,5)	
	2500	25,7-27,7 (24,4-29,0)	
	1500	(28,1-32,7)	
	600	17,9-20,9 (16,4-22,4)	
switch-off elect.	400	bei 2,5 V 0	
Idle stop	1200	max. 3,0	
	475	(4,0-12,0)	
End stop	400	min. 15,0	
	500	max. 20,0	

2.4 Solenoid — max. cut-in voltage xxxx 10 V
xxx voltage xxxx rated voltage 12V.

3. Dimensions

Designation	for assembly and adjustment mm
K	3,2-3,4
KF	5,7-5,9
MS	1,3-1,5
SVS	max. 3,6
* FH	1,8-2,4
**	9,0-14,0
A	9,4-12,6
B	

Observations

* operating stroke (KSB)
**Two-piece control lever.
XK = 18,6-20,6 mm
XL = 9,1-12,8 mm

H15

Test Specifications Distributor-type Fuel-injection Pumps

En

WPP 001/4 VWW 1,5 bl
2. Edition

VE 4/9 F 2500 R 16-3
R 16-3 P

superseded 4.82
company: VW
engine: EA 086/10

Test/ISO 413

0 460 494 028
0 460 494 029

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment see VDT-W-460/..

Pre-stroke setting --- mm

1. Settings

	Rot. speed rev/min	Settings		Charge-air press. bar (kgf/cm²)	Difference in delivery cm³
1.1 Timing device travel	1500	3,4-3,8	mm		
1.2 Supply pump pressure	1500	4,0-4,6	bar (kgf/cm²)		
1.3 Full-load delivery without charge-air pressure	1500	29,9-30,9	cm³/1000 strokes		
Full-load delivery with charge-air pressure	--	--	cm³/1000 strokes		2,5 (3,0)
1.4 Idle speed regulation	475	6,0-10,0	cm³/1000 strokes		2,5 (3,0)
1.5 Start	100	min. 39,0	cm³/1000 strokes		
1.6 Full-load speed regulation	2670	13,5-19,5	cm³/1000 strokes		
1.7 Load-dependent start of delivery	--	--			

2. Test Specifications

checking values in brackets ( )

2.1 Timing device	n = rev/min	1000	1500	2200
	mm	1,3-2,1 (1,0-2,4)	(2,9-4,3)	6,2-7,0 (5,9-7,3)
2.2 Supply pump	n = rev/min	400		2200
	bar (kgf/cm²)	1,4-2,0		5,9-6,5
Overflow delivery	n = rev/min	500		2500
	cm³/10 s	55-111 (40-126)		55-111 (40-126

2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm³/1000 strokes	Charge-air press bar (kgf/cm²)
End stop	2950	max. 4,0	
	2820	max. 8,0	
	2670	(12,5-20,5)	
	2500	25,7-27,7 (24,4-29,0)	
	1500	(28,1-32,7)	
	600	17,9-20,9 (16,4-22,4)	
switch-off elect.	400	bei 2,5 V 0	
Idle stop	1200	max. 3,0	
	475	(4,0-12,0)	
End stop	400	min. 15,0	
	500	max. 20,0	

2.4 Solenoid: max. cut-in voltage xxx min. 10 V
xxxxxxxxxxxx rated voltage 12V.

3. Dimensions

Designation	for assembly and adjustment mm
K	3,2-3,4
KF	5,7-5,9
MS	1,3-1,5
SVS	max. 3,6
* FH	1,8-2,4
**	9,0-14,0
A	9,4-12,6
B	

Observations

* operating stroke (KSB)
**Two-piece control lever.
XK = 18,6-20,6 mm
XL = 9,1-12,8 mm

H16

BOSCH Geschäftsbereich KH Kundendienst Kfz-Ausrüstung
1980 by Robert Bosch GmbH, Postfach 50, D-7000 Stuttgart 1 Printed in the Federal Republic of Germany
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Test Specifications Distributor-type Fuel-injection Pumps

WPP 001/4 VWW 1,5 al

2. Edition

En

4.82

supersedes

company: VW

engine: EA 086/10

VE 4/9 F 2500 R 16
R 16 P

0 460 494 002
0 460 494 003

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment see VDT-W-460/..

Testoil-ISO 4113

Pre-stroke setting -- mm

1. Settings

	Rot. speed rev/min	Settings		Charge-air press. bar (kgf/cm²)	Difference in delivery cm³
1.1 Timing device travel	1500	3,4-3,8	mm		
1.2 Supply pump pressure	1500	4,0-4,6	bar (kgf/cm²)		2,5 (3,0)
1.3 Full-load delivery without charge-air pressure	1500	29,9-30,9	cm³/1000 strokes		
Full-load delivery with charge-air pressure	--	--	cm³/1000 strokes		
1.4 Idle speed regulation	415	6,0-10,0	cm³/1000 strokes		2,5 (3,0)
1.5 Start	100	min. 39,0	cm³/1000 strokes		
1.6 Full-load speed regulation	2670	13,5-19,5	cm³/1000 strokes		
1.7 Load-dependent start of delivery	--	--			

2. Test Specifications

checking values in brackets ( )

2.1 Timing device	n = rev/min	1000	1500	2000
	mm	1,3-2,1(1,0-2,4)	(2,9-4,3)	6,2-7,0(5,9-7,3)
2.2 Supply pump	n = rev/min	400		2200
	bar (kgf/cm²)	1,4-2,0		5,9-6,5
Overflow delivery	n = rev/min	500		2500
	cm³/10 s	55-111 (40-126)		55-111 (40-126)

2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm³/1000 strokes	Charge-air press. bar (kgf/cm²)
End stop	2950	max. 4,0	
	2820	max. 8,0	
	2670	(12,5-20,5	
	2500	25,7-27,7 (24,4-29,0)	
	1500	(28,1-32,7)	
	600	17,9-20,9 (15,4-22,4	
switch-off elect.	400	bei 2,5 V 0	
Idle stop	1200	max. 3,0	
	415	(4,0-12,0)	
End stop	400	min. 15,0	
	500	max. 20,0	

2.4 Solenoid

max cut-in voltage xxx min. 10 V
test voltage xxxxxxxxxxrated voltage 12V.

3. Dimensions

Designation	for assembly and adjustment mm
K	3,2-3,4
KF	5,7-5,9
MS	1,3-15,
SVS	max. 3,6
* FH	1,8-2,4
**	9,0-14,0
A	9,4-12,0
B	

Observations

* operating stroke (KSB)
**Two-piece control lever.
XK = 18,6-20,6 mm
XL = 9,1-12,8 mm

H17

H17

Test Specifications Distributor-type Fuel-injection Pumps

WPP 001/4 RVI
1. Edition
En

Testoil-ISO 4113

VE 4/12 F 1500 R 51-1

0 460 424 005

supersedes
company RVI-Renault
engine: 720 S

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment see VDT-W-460/..

Pre-stroke setting – mm

1. Settings

	Rot. speed rev/min	Settings		Charge-air press. bar (kgf/cm²)	Difference in delivery cm³
1.1 Timing device travel	1000	3,3- 3,7	mm	0,8	
1.2 Supply pump pressure	1000	4,7- 5,3	bar (kgf/cm²)	0,8	
1.3 Full-load delivery without charge-air pressure	500	63,0-64,0	cm³/1000 strokes	0	
Full-load delivery with charge-air pressure	1000	86,5-87,5	cm³/1000 strokes	0,8	4,0
1.4 Idle speed regulation	325	14,0-20,0	cm³/1000 strokes	0	3,5
1.5 Start	100	min.100,0	cm³/1000 strokes	0	
1.6 Full-load speed regulation	1650	17,0-23,0	cm³/1000 strokes	0,8	
1.7 Load-dependent start of delivery					

2. Test Specifications

checking values in brackets ( )

2.1 Timing device	n = rev/min	750	1000	1500
LDA=0,8bar	mm	1,3-2,1(1,0-2,4)	(2,8-4,2)	6,1-6,9(5,8-7,2)
2.2 Supply pump	n = rev/min	300		1500
LDA=0,8bar	bar (kgf/cm²)	1,7-2,3		6,7-7,3
Overflow delivery	n = rev/min	500		1500
	cm³/10 s	55-138(40-153)		55-138(40-153)

2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm³/1000 strokes		Charge-air press. bar (kgf/cm²)
End stop	1700	max. 3,0		0,8
	1650		(15,0-25,0)	0,8
	1600	53,0-61,0	(52,0-62,0)	0,8
	1500	83,0-86,0	(81,5-87,5)	0,8
	1000		(84,0-90,0)	0,8
	750	83,0-86,0	(81,5-87,5)	0,8
	* 600	73,5-74,5	(71,0-77,0)	0,4
	500		(59,7-67,3)	0
switch-off	1500	0		
Idle stop	400	max. 3,0		
	325		(12,0-22,0)	
End stop	200	min.90,0		
	350	max.90,0		

2.4 Solenoid — max. cut-in voltage / test voltage

3. Dimensions

Designation	for assembly and adjustment mm
K	3,2-3,4
KF	5,7-5,9
MS	1,4-1,6
SVS	max.6,0
XK	20,1-22,1
XL	12,6-16,4

Observations

24V Pulling electro-magnet
Manifold-pressure compensator stroke = 4,5 mm
Correction at the adjusting nut (46).

BOSCH Geschäftsbereich KH. Kundendienst Kfz-Ausrüstung

H18

Test Specifications Distributor-type Fuel-injection Pumps

46

WPP 001/4 MAN 5,6 f
1. Edition

En

VE 6/11 F 1100 R 55-5
0 460 416 024

supersedes–
company: MAN
engine: D0 226 ME

Overflow temperature 45° C

Testoil-ISO 4113

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment see VDT-W-460/..

Pre-stroke setting 0.2 mm ± 0.02 (0.04) mm

1. Settings	Rot. speed rev/min	Settings		Charge-air press. bar (kgf/cm²)	Difference in delivery cm³
1.1 Timing device travel	700	2,9- 3,3	mm		
1.2 Supply pump pressure	700	3,9-4,5	bar (kgf/cm²)		
1.3 Full-load delivery without charge-air pressure	700	69,0-70,0	cm³/1000 strokes		3,5
Full-load delivery with charge-air pressure	-	-	cm³/1000 strokes		
1.4 Idle speed regulation	300	2,5-6,5	cm³/1000 strokes		3,5
1.5 Start	100	min. 90,0	cm³/1000 strokes		
1.6 Full-load speed regulation	1250	19,0-25,0	cm³/1000 strokes		
1.7 Load-dependent start of delivery					

2. Test Specifications

checking values in brackets ( )

2.1 Timing device	n = rev/min	500	700	900
	mm	0,9-1,7 (0,6-2,0)	(2,4-3,8)	4,0-4,8 (3,7-5,1)
2.2 Supply pump	n = rev/min	500		1100
	bar (kgf/cm²)	2,9-3,5		5,7-6,3
Overflow delivery	n = rev/min	500		1100
	cm³/10 s	55-138 (40-153)		55-138 (40-153)

2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm³/1000 strokes	Charge-air press. bar (kgf/cm²)
End stop	1330	max. 1,5	
	1250	(17,5-26,5)	
	1100	75,5-78,5 (74,3-79,7)	
	900	73,5-76,5 (72,3-77,7)	
	700	(66,8-72,2)	
	500	64,0-68,0 (62,6-69,4)	
switch-off	1100	0	
Idle stop	340	max. 1,5	
	300	(0-9,0)	
End stop	380	min. 81	
	450	max. 65	

2.4 Solenoid: max. cut-in voltage xxx min. 10 V
xxx xxxxx xxx rated voltage 12V.

3. Dimensions

Designation	for assembly and adjustment mm
K	-
KF	5,7-5,9
MS	1,2-1.4
SVS	max. 6.0
XK	25,0-27,0
XL	11,8-15,2

Observations

Pulling electro-magnet

H19

H19

BOSCH Geschäftsbereich KH Kundendienst Kfz-Ausrüstung

Test Specifications Distributor-type Fuel-injection Pumps

46

WPP 001/4 VWW 2,0c
2. Edition

En

VE 5/10 F 2400 L 35-6 (P)
0 460 405 027; 028

supersedes 6.82
company: VWW
engine: Audi 100

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment see VDT-W-460/..

Pre-stroke setting 0,14 mm ± 0,02 (0,04)

Testoil-ISO 4113

1. Settings

	Rot. speed rev/min	Settings		Charge-air press. bar (kgf/cm²)	Difference in delivery cm³
1.1 Timing device travel	1400	2,4-2,8	mm		
1.2 Supply pump pressure	1400	5,0-5,6	bar (kgf/cm²)		
1.3 Full-load delivery without charge-air pressure	1400	35,0-36,0	cm³/1000 strokes		2,5(3,0)
Full-load delivery with charge-air pressure	--	--	cm³/1000 strokes		
1.4 Idle speed regulation	375	6,0-10,0	cm³/1000 strokes		2,5(3,0)
1.5 Start	100	min.53,0	cm³/1000 strokes		
1.6 Full-load speed regulation	2500	24,5-31,5	cm³/1000 strokes		
1.7 Load-dependent start of delivery	--	--			

2. Test Specifications

checking values in brackets ( )

2.1 Timing device	n = rev/min	1000	1400	2400
	mm	1,3-2,1(1,0-2,4)	(1,9-3,3)	5,1-5,9(4,8-6,2)
2.2 Supply pump	n = rev/min	500		2400
	bar (kg²/cm²)	2,8-3,4		7,5-8,1
Overflow delivery	n = rev/min	500		2400
	cm³/10 s	55-138(40-153)		55-138(40-153)

2.3 Fuel delivenes

Speed control lever	Rot. speed rev/min	Fuel delivery cm³/1000 strokes		Charge-air press. bar (kgf/cm²)
End stop	2650	6,0-12,0	(5,0-13,0)	
	2500		(24,0-32,0)	
	2400	29,5-31,5	(28,2-32,8)	
	1400		(33,2-37,8)	
	750	24,5-27,5	(23,0-29,0)	
Mech. switch-off	2400	0		
elektr.	400	0		
Idle stop	500	max.3,0		
	375		(4,0-12,0)	
End stop	400	min. 16,0		
	500	max. 23,0		

2.4 Solenoid — max. cut-in voltage xxx min. 10,0 V
test voltage xxxxxxxxx rated voltage 12V.

3. Dimensions

for assembly and adjustment

Designation	mm
K	--
KF	5,7-5,9
MS	1,7-1,9
SVS	max.3,0
XK	18,5-20,5
XL	9,0-12,5
B	

Observations

Mechanical stop control

10.82

H20

H20

Test Specifications Distributor-type Fuel-injection Pumps

WPP 001/4 VWW 1,6L
4. Edition

En

VE 4/9 F 2400 R 66-12 (P)
0 460 494 082; 083

supersedes 7.82
company VWW
engine Rabbit Autom.

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test instructions and Test Equipment see VDT-W-460/..

Pre-stroke setting -- mm

1. Settings

	Rot. speed rev/min	Settings		Charge-air press. bar (kgf/cm²)	Difference in delivery cm³
1.1 Timing device travel	1500	2,9-3,3	mm		
1.2 Supply pump pressure	1500	4,9-5,5	bar (kgf/cm²)		
1.3 Full-load delivery without charge-air pressure	1500	30,0-31,0	cm³/1000 strokes		2,5(3,0
Full-load delivery with charge-air pressure	--	-	cm³/1000 strokes		
1.4 Idle speed regulation	415	7,0-11,0	cm³/1000 strokes		2,5(3,0)
1.5 Start	100	min.38,0	cm³/1000 strokes		
1.6 Full-load speed regulation	2600	11,0-17,0	cm³/1000 strokes		
1.7 Load-dependent start of delivery	--	-			

2. Test Specifications

checking values in brackets ( )

2.1 Timing device	n = rev/min	1000	1500	2400
	mm	1,3-2,1(1,0-2,4)	(2,4-3,8)	6,1-5,9(5,8-7,2)
2.2 Supply pump	n = rev/min	400		2400
	bar (kgf/cm²)	2,1-2,7		7,0-7,6
Overflow delivery	n = rev/min	500		2400
	cm³/10 s	55-138(40-123)		55-138(40-123)

2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm³/1000 strokes		Charge-air press. bar (kgf/cm²)
End stop	2700	2,5-9,5	(2,0-10,0)	
	2600		(10,0-18,0)	
	2400	26,0-28,0	(24,7-29,3)	
	1500		(28,2-32,8)	
	600	17,5-20,5	(16,0-22,0)	
switch-off mech.	2400	0		
elektr.	400	0		
Idle stop	1200	max. 5,0		
	600	max. 6,0		
	415		(5,0-13,0)	
End stop	400	min. 13,5		
	500	max. 19,5		

2.4 Solenoid — max. cut-in voltage xxx min. 10,0 V
xxxxxxxxxx rated voltage 12V.

3. Dimensions

for assembly and adjustment

Designation	mm
K	3,2-3,4
KF	5,7-5,9
MS	1,3-1,5
SVS	max.2,5
*FH	1,8-2,4
XK	18,4-20,4
XL	10,4-12,7
B	

Observations
*operating)
stroke (KSB)

Tastoil-ISO 4113

H21

PE 6 MW 100/720 LS 1017 RQ 300/1250 MW 26
0 403 546 003
1 - 6 - 5 - 4 - 3 - 2
0 - 75 - 120 - 195 - 240 - 315 ± 0,50 (0,75)

supersedes 9.82
company: KHD
engine: F6L413FX
150 kW (205 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 3,10-3,20 (3,05-3,25) mm (from BDC) RW = 9,0 - 12 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1250	12,0+0,1	11,3-11,5	0,5(0,6)			
350	8,2-8,4	1,25-1,65	0,35(0,55)			
700	12,7+0,1		0,5(0,7)			

Adjust the fuel delivery from each outlet according to the values in ☐.

B. Governor Settings

Checking of slider PRG check ①		Full-load speed regulation				Idle speed regulation				Torque control ③	
		Setting point		Test specifications ④		Setting point		Test specifications ⑤			
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
600	19,2-20,8	600	20,0	11,6	1295-1310	300	8,3	100	min. 9,9	700	12,7-12,8
				4,0	1345-1375			350	8,2-8,4	850	12,4-12,5
1450	0,0-1,0							380-440 = 2,0		11-0	12,0-12,1

Torque-control travel on flyweight assembly dimension a = mm Speed regulation: At 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever ② Test oil temp. 40°C (104°F)		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min 1	cm³/-1000 strokes 2	rev/min 3	rev/min 4	cm³/-1000 strokes 5	rev/min 6	Control rod travel cm³/1000 strokes / mm 7
1250	113,0-115,0 (111,0-117,0)		700	109,5-113,5 (107,5-115,5)	100	126,5-136,5 (123,5-139,5)
					950	12,5- 16,5 (10,0- 19,0)
					100-270 (80-300)	

Checking values in brackets

11.82

Testoil-ISO 4113

PE 6 MW 100/720 RS 1007
RQ 300/1250 MW 12-1
Komb. Nr. 0 403 546 001

1 - 5 - 3 - 6 - 2 - 4 = 0 - 60 - 120 - 180 - 240 - 300
± 0,50 (0,75)°

supersedes 5.82
company: Daimler Benz
engine: OM 360 A
155 kW (211 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 3,80-3,90 (3,75-3,95) mm (from BDC) RW 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1250	11,2+0,1	9,95-10,15	0,35(0,6)			
300	6,9-7,1	1,35- 1,75	0,35(0,55)			
750	-	C, Sp. 4-5	0,5 (0,7)			

Adjust the fuel delivery from each outlet according to the values in [ ].

B. Governor Settings

Checking of slider PRG check ①		Full-load speed regulation Setting point		Test specifications ④		Idle speed regulation Setting point		Test specifications ⑤		Torque control ③	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
650	13,1-13,9	650	13,5	10,2	1295-1310	300	7,0	220	min. 9,0		
1550	0,1- 1,0	VH=	46°	4,0	1395-1425			300 395- 435	6,9-7,1 = 2,0		

Torque-control travel on flyweight assembly dimension a = mm Speed regulation: At 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever ② Test oil temp. 40°C (104°F)		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min 1	cm³/-1000 strokes 2	rev/min 3	rev/min 4	cm³/-1000 strokes 5	rev/min 6	Control rod travel cm³/1000 strokes / mm 7
1250	99,5 - 101,5 (97,5 - 103,5)	500	750	93,0 - 97,0 (91,0 - 99,0)	100*	70,0 - 75,0 (67,0 - 78,0)
			300	13,5 - 17,5 (11,0 - 20,0)		

Checking values in brackets

11.82

H23

Test Specifications Fuel Injection Pumps and Governors ②

WPP 001/4 RVI 8,8 g
2 Edition:
En

PES 6 MW 100/320 RS 1016 RQ 750 MW 42
0 403 446 130
1 - 5 - 3 - 6 - 2 - 4
0 - 60 - 120 - 180 - 240 - 300 ± 0,50 (0,75)

supersedes
company: RVI
engine: MIDR 06.02-12
100 kW (136 PS)

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 3,00-3,10 (2,95-3,15) mm (from BDC) RW 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	14,5+0,1	13,35-13,55	0,35(0,6			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check ①		Full-load speed regulation Setting point		Full-load speed regulation Test specifications ④		Idle speed regulation Setting point		Idle speed regulation Test specifications ⑤		Torque control ③	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
785-795	3,9-4,1			13,5	750-755						
850	0,0-1,0			4,0	785-795						

Torque-control travel on flyweight assembly dimension a = mm Speed regulation: At 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) ②		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min 1	cm³/-1000 strokes 2	rev/min 3	rev/min 4	cm³/-1000 strokes 5	rev/min 6	Control rod travel cm³/1000 strokes / mm 7
700	133,5-135,5 (131,5-137,5)				100	19,0-21,0 RW min. 80,0

Checking values in brackets

11.82

BOSCH Geschäftsbereich K.-I. Kundendienst Kfz-Ausrüstung

(1A)

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 KHD 4,7 c

1. Edition

En

PES 5 A 80 D 410/3 RS 2603 RS 325/1650 A 0 B 2087 L

supersedes

company: KHD

engine: F 5 L 912
63 kW (85 PS)$_{-1}$
at 3300 min

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,9 - 2,0 (1,85-2,05) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1500	9,9-10,0	5,1 - 5,2	0,2(0,35)			
325	8,7-8,9	1,7 - 2,1	0,2(0,3)			

Adjust the fuel delivery from each outlet according to the values in [ ].

B. Governor Settings

Upper rated speed: Degree of deflection of control lever 1	rev/min 2	Control rod travel mm 3	Intermediate rated speed: Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	(4) Lower rated speed: Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	(3) Torque control: rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	approx. 18	325	8,8	-	-
							100	min.13,6		
approx. 49	8,9	1690-1700					325	8,7-8,9		
(5)	4,0	1740-1770					550-590	=2,0		
	1900	0 - 1,0					600	max.1,8		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2) Full-load stop: Test oil temp. 40°C (104°F) rev/min 1	cm³/1000 strokes 2	(6) Rotational-speed limitat. Note: changed to ... rev/min 3	(3a) Fuel delivery characteristics: rev/min 4	cm³/1000 strokes 5	Starting fuel delivery Idle: rev/min 6	cm³/1000 strokes 7	(5a) Idle stop: rev/min 8	Control rod travel mm 9
1500	50,5-51,5 (49,0-53,0)	1690-1700*	-	-	-	-	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

10.82

J1

BOSCH Ges. Hilfsbereich KH Kundendienst Kfz Ausrüstung
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PE 6 P 100 A 320 RS 384 RQ 225/1100 PA 574

supersedes 5.81

company: DAF

engine: DKL
151 kW (205 PS)

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 3,2-3,3 (3,15-3,35) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
600	11,5+0,1	11,1-11,3	0,3(0,6)			
225	7,2-7,4	1,1 - 1,5	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in [ ].

B. Governor Settings

Checking of slider PRG check ①		Full-load speed regulation Setting point		Test specifications ④		Idle speed regulation Setting point		Test specifications ⑤		Torque control ③	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
550	15,6-16,4	550	16,0	9,8 4,0 1300	1140-1155 1170-1200 0 - 1,0	225	7,3	100 225 325-365	min. 7,5 7,2-7,4 =2,0	600 1050 800 855	11,5-11,6 10,8-11,0 11,2-11,4 10,9-11,2

Torque-control travel on flyweight assembly dimension a = 0,25 mm

Speed regulation: At 1140-1155 min^{-1}

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever ② Test oil temp. 40°C (104°F)		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min 1	cm³/–1000 strokes 2	rev/min 3	rev/min 4	cm³/–1000 strokes 5	rev/min 6	cm³/1000 strokes / Control rod travel mm 7
600	111,0-113,0 (109,0-115,0)	600	1050	107,0-111,0 (105,0-113,0)	100	195,0-235,0 =19,5-21,0 mm RW

Checking values in brackets

11.82

BOSCH Geschäftsbereich KH Kundendienst Kfz-Ausrüstung.

J2

PE 6 P 100 A 320 RS 384 RQ 225/1100 PA 517

superseded: 10.80
company: DAF
engine: DKL
151 kW (205 PS)

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 3,2-3,3 (3,15-3,35) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
600	11,5+0,1	11,0-11,2	0,3 (0,6)			
225	7,2-7,4	1,1-1,5	0,3 (0,5)			

Adjust the fuel delivery from each outlet according to the values in ☐.

B. Governor Settings

Checking of slider PRG check ① rev/min 1	Control rod travel mm 2	Full-load speed regulation Setting point rev/min 3	Control rod travel mm 4	Test specifications ④ Control rod travel mm 5	rev/min 6	Idle speed regulation Setting point rev/min 7	Control rod travel mm 8	Test specifications ⑤ rev/min 9	Control rod travel mm 10	Torque control ③ rev/min 11	Control rod travel mm 12
550	15,6-16,4	550	16,0	9,8 4,0 1300	1140-1155 1170-1200 0-1,0	225	7,3	100 225 325-365	min. 7,5 7,2-7,4 =2,0	600 1050 800 855	11,5-11,6 10,8-11,0 11,2-11,4 10,9-11,2

Torque-control travel on flyweight assembly dimension a = 0,25 mm

Speed regulation: At 1140-1155 min⁻¹

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever ② Test oil temp. 40°C (104°F) rev/mn 1	cm³/-1000 strokes 2	Control rod stop ③a rev/min 3	Fuel delivery characteristics ③b rev/min 4	cm³/-1000 strokes 5	Starting fuel delivery Idle speed ⑥ rev/min 6	Control rod travel / cm³/1000 strokes / mm 7
600	110,0-112,0 (108,0-114,0)	600	1050	107,0-111,0 (105,0-113,0)	100	195,0-235,0 =19,5-21,0

Checking values in brackets

J3

J2

Test Specifications Fuel Injection Pumps and Governors ①

WPP 001/4 GUS 21,2 a
2. Edition
En

Testoil-ISO 4113

PE 8 P 130 A 520/4 RS 3085 RQV 350-900 PA 602

superseded 8.81
company Guascor
engine E 212

1 - 2 - 4 - 5 - 6 - 3 - 7 - 8 je $45^{0} \pm 0{,}5^{0}$ ($\pm 0{,}75^{0}$)

Values apply to
engine nozzle-and-holder assemblies 1 688 901 019
and engine fuel-injection tubing 1 680 750 067

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 3,2 - 3,3 (3,15-3,35) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
900	8,5-8,6	18,8 - 19,1	0,5(0,9)			
350	4,0-4,2	2,2 - 2,8	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in [ ].

B. Governor Settings

Upper rated speed: Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min (1a) (2a) 3	Intermediate rated speed: Degree of deflection of control lever 4	rev/min 5	Control rod travel mm (4) 6	Lower rated speed: Degree of deflection of control lever 7	rev/min 8	Control rod travel mm (3) 9	Sliding sleeve travel (1): rev/min 10	mm 11
max.	950 1100	15,2-17,8 0 - 1	-	-	-	ca.10	100 350	min.5,6 4,0-4,2	300 500 700 900	1,0-1,2 2,3-3,2 4,7-5,1 7,8
ca.58	7,5 4,0	940 - 950 965 -995				355-455 (3a)				

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) (2): rev/min 1	cm³/1000 strokes 2	Rotational-speed limitation (2b) intermediate speed (4a): rev/min 3	Fuel delivery characteristics (5a) high idle speed (5b): rev/min 4	cm³/1000 strokes 5	Starting fuel delivery (6) idle switching point: rev/min 6	cm³/1000 strokes 7	Torque-control travel (5): rev/min 8	Control rod travel mm 9
900	188,0-191,0 (185,0-194,0)	940 - 950*	-	-	100	19,5 - 21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

12.82

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J4

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 SSC 10,5 a
1. Edition
En

PES6P120A320RS3092-1 RQV320-1300 PA 654

supersedes
company SSCM
engine 6LC520 S2
277 kW(376 PS)

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,8-2,9 (2,75-2,95) mm (from BDC) = RW 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1280	12,6+0,1	23,5-23,9	0,5(0,9)			
320	7,2-7,4	2,2-2,8	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in [ ]

B. Governor Settings

Upper rated speed: Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm (1a) rev/min (2a) 3	Intermediate rated speed: Degree of deflection of control lever 4	rev/min 5	Control rod travel mm (4) 6	Lower rated speed: Degree of deflection of control lever 7	rev/min 8	Control rod travel mm (3) 9	Sliding sleeve travel (1): rev/min 10	mm 11
max.	1305	15,2-17,8	-	-	-	ca.16	100	min.8,8	300	1,3-1,5
ca.66	11,6	1325-1335					320	7,2-7,4	630	3,7-4,0
	4,0	1415-1445							970	5,5-5,7
	1550	0 - 1,0				350-460 (3a)			1300	8,4

Torque control travel a = – mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) (2): rev/min 1	cm³/1000 strokes 2	Rotational-speed limitation (2b) intermediate speed (4a): rev/min 3	Fuel delivery characteristics (5a) high idle speed (5b): rev/min 4	cm³/1000 strokes 5	Starting fuel delivery (6) idle switching point: rev/min 6	cm³/1000 strokes 7	Torque-control travel (5): rev/min 8	Control rod travel mm 9
1280	235,0-239,0 (232,0-242,0)	1325-1335*	-	-	100	19,5-21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

11.82

J5.

BOSCH Geschäftsbereich KH Kundendienst, Kfz-Ausrüstung
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Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 SSC 14,0 a
1. Edition
En

PE 12 P 100 A 520 RS 3103 RQV 375-1000 PA 639

supersedes_
company: SSCM
engine: Poyaud V 12-520 AN
219 kW (298 PS)

1- 8- 5-10- 3 - 7- 6 - 11- 2 - 9 - 4 - 12

0-15-60-75-120-135-180-195-240-255-300-315 ° ±0,5° (± 0,75°)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke 2,8-2,9 (2,75-2,95) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	10,8+0,1	9,3-9,5	0,3(0,6)			
375	7,7-7,9	0,8-1,4	(0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in [ ].

B. Governor Settings

Upper rated speed: Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min (1a) (2a) 3	Intermediate rated speed: Degree of deflection of control lever 4	rev/min 5	Control rod travel mm (4) 6	Lower rated speed: Degree of deflection of control lever 7	rev/min 8	Control rod travel mm (3) 9	Sliding sleeve travel (1): rev/min 10	mm 11
max.	1070	15,2-17,8	-	-	-	ca.17	100	min. 9,3	350	0,8-1,1
							375	7,7-7,9	570	3,5-3,8
ca. 63	9,8	1040-1050							780	5,0-5,4
	4,0	1090-1120							1000	7,6
	1250	0 - 1,0								
						375-475 (3a)				

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) (2): rev/min 1	cm³/1000 strokes 2	Rotational-speed limitation (2b) intermediate speed (4a): rev/min 3	Fuel delivery characteristics high idle speed (5a) (5b): rev/min 4	cm³/1000 strokes 5	Starting fuel delivery Idle switching point (6): rev/min 6	cm³/1000 strokes 7	Torque-control travel (5): rev/min 8	Control rod travel mm 9
1000	93,0-95,0 (91,0-97,0)	1040-1050*	-	-	100	230,0-250,0	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

11.82

BOSCH Geschäftsbereich KH, Kundendienst, Kfz-Ausrüstung.

J6

Test Specifications Fuel Injection Pumps (1) and Governors

WPP 001/4 KHD 15,8 l
1. Edition

En

PE 10 A 95 D 610/4 LS 2452 RQV-750 AB 996 L

supersedes

company KHD

engine: F10L413F
196 kW (266 PS)
bei 1500 min $^{-1}$

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,0-2,1 (1,95-2,15) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
710	9,5-9,6	8,0-8,2	0,3 (0,6)			
300	5,6-5,8	0,4-0,9	0,3 (0,5)			

Adjust the fuel delivery from each outlet according to the values in [ ].

B. Governor Settings

Upper rated speed: Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm (1a) rev/min (2a) 3	Intermediate rated speed: Degree of deflection of control lever 4	rev/min 5	Control rod travel mm (4) 6	Lower rated speed: Degree of deflection of control lever 7	rev/min 8	Control rod travel mm (3) 9	Sliding sleeve travel (1): rev/min 10	mm 11
max.	760	15,2-17,8	-	-	-	-	-	-	-	-
ca.27	9,0 4,0	750-755 770-785				(3a)				

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) (2): rev/min 1	cm³/1000 strokes 2	Rotational-speed limitation (2b) intermediate speed (4a): rev/min 3	Fuel delivery characteristics (5a) high idle speed (5b): rev/min 4	cm³/1000 strokes 5	Starting fuel delivery (6) Idle switching point: rev/min 6	cm³/1000 strokes 7	Torque-control travel (5): rev/min 8	Control rod travel mm 9
710	79,5-81,5 (77,5-83,5)	750-755*	-	-	100	min.116,5 = 13,9-14,3 mm RW	-	-

Checking values in brackets

*0,5 mm less control rod travel than col. 2

11.82

J7

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 KHD 15,8 d 1

1. Edition

En

PE 10 A 95 D 610/4 LS 2452 RQV 300-1250 AB 1026 DL

supersedes –

company: KHD

engine: F 10 L 413 F
235 kW (320 PS)
bei 2500 min⁻¹

1-10- 9- 4- 3 - 6 - 5 - 8 - 7 - 2
0-27-72-99-144-171-216-243-288-315° ± 0,5° (± 0,75°)

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,0-2,1 (1,95-2,15) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1250	10,3+0,1	9,1-9,3	0,3(0,6)			
300	6,8-7,0	1,4-2,0	0,3(0,7)			

Adjust the fuel delivery from each outlet according to the values in [ ].

B. Governor Settings

Upper rated speed: Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm (1a) rev/min (2a) 3	Intermediate rated speed: Degree of deflection of control lever 4	rev/min 5	Control rod travel mm (4) 6	Lower rated speed: Degree of deflection of control lever 7	rev/min 8	Control rod travel mm (3) 9	Sliding sleeve travel (1): rev/min 10	mm 11
max.	1295	15,2-17,8	-	-	-	ca. 12	100	min. 7,5	250	0,5-0,8
							300	5,9-6,1	580	2,8-3,1
ca. 66	9,3	1290-1300					550-680	=2,0	920	4,6-4,9
	4,0	1340-1370				330-400	850	max. 1,0	1250	7,6
	1500	0-1,0				(3a)				

Torque control travel a = 0,4 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) (2): rev/min 1	cm³/1000 strokes 2	Rotational-speed limitation (2b) intermediate speed (4a): rev/min 3	Fuel delivery characteristics (5a) high idle speed (5b): rev/min 4	cm³/1000 strokes 5	Starting fuel delivery (6) idle switching point: rev/min 6	cm³/1000 strokes 7	Torque-control travel (5): rev/min 8	Control rod travel mm 9
1250	91,0-93,0 (89,0-95,0)	1290-1300*	1000	90,5-93,5 (88,5-95,5)	100	14,3-15,3 mm RW	1250	10,3+0,1
							1000	10,3+0,2
			700	91,0-94,0 (89,0-96,0)			700	10,7+0,1
							400	10,7+0,1

Checking values in brackets

* 1 mm less control rod travel than col. 2

11.82

BOSCH Geschäftsbereich KH. Kundendienst: Kfz-Ausrüstung.

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 MB 11,4 o
2. Edition
En

Testoil-ISO 4113

PES 6 P 120 A 820 LS 3095 RSV 350-750 P1/487

supersedes 4.82

company Daimler-Benz

engine: OM 407 A
169 kW (230 PS)

Values apply to
engine nozzle-and-holder assemblies 1 688 901 019
and engine fuel-injection tubing 1 680 750 067

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 4,0 - 4,1 (3,95-4,15) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
730	12,4+0,1	19,6 - 19,8	0,5(0,8)			
350	5,7-5,9	3,0 - 4,0	0,8(0,7)			

Adjust the fuel delivery from each outlet according to the values in [ ].

B. Governor Settings

Upper rated speed: Degree of deflection of control lever 1	rev/min 2	Control rod travel mm 3	Intermediate rated speed: Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	(4) Lower rated speed: Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	(3) Torque control: rev/min 10	Control rod travel mm 11
loose	700	0,3-1,8	-	-	-	-	-	-	-	-
	x =	2,25								
ca. 33 (5)	11,4	745-760								
	4,0	765-795								
	900	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2) Full-load stop, Test oil temp. 40°C (104°F): rev/min 1	cm³/1000 strokes 2	(6) Rotational-speed limitat. Note: changed to ... rev/min 3	(3a) Fuel delivery characteristics: rev/min 4	cm³/1000 strokes 5	Starting fuel delivery Idle: rev/min 6	cm³/1000 strokes 7	(5a) Idle stop: rev/min 8	Control rod travel mm 9
730	196,0-198,0 (193,0-201,0)	745-760 *	-	-	100	170,0-190,0	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

11.82

BOSCH Geschäftsbereich KH. Kundendienst Kfz-Ausrüstung

J9

Testoil-ISO 4113

PE 6 P 110 A 720 RS 393 RSV 350-1200 P 1/462 R

superseded 2.82
company: Scania
engine: D 8

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 3,0-3,1 (2,95-3,15) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1200	12,0+0,1	9,5 - 9,7	0,4(0,8)			2,5+0,1
350	6,9-7,1	0,8 - 1,2	0,3(0,5)			(2,2-2,9)

Adjust the fuel delivery from each outlet according to the values in [ ].

B. Governor Settings

Upper rated speed			Intermediate rated speed			(4) Lower rated speed			(3) Torque control	
Degree of deflection of control lever 1	rev/min 2	Control rod travel mm 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	ca.24	350	6,5	-	-
		x = 4,0					100	min.20,0		
							350	6,9-7,1		
ca. 62 (5)	11,0	1240-1250					530-590	=2,0mm		
	4,0	1275-1305								
	1440	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2) Full-load stop		(6) Rotational-speed limitat.	(3a) Fuel delivery characteristics		Starting fuel delivery idle		(5a) Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ...						Control rod travel
rev/min 1	cm³/1000 strokes 2	rev/min 3	rev/min 4	cm³/1000 strokes 5	rev/min 6	cm³/1000 strokes 7	rev/min 8	mm 9
1200	95,0- 97,0 (92,0-100,0)	1240-1250*	600	88,5 - 91,5 (85,5 - 94,5)	100	170 - 210 20,0- 21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

12.82

J10

J10

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 MB 3,8 f 2
1. Edition

En

PES 4 A 80 D 410 R[illegible] 2519 RSV 350-1275 A2B 1004 DL

supersedes–
company Daimler-Benz
engine OM 314

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15-2,25 (2,10-2,30) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm (2) 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1275	9,0-9,1	5,3-5,4	0,2 (0,35)			
350	7,4-7,6	1,6-2,2	0,2 (0,3)			

Adjust the fuel delivery from each outlet according to the values in ☐

B. Governor Settings

(1) Upper rated speed rev/min: Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	Intermediate rated speed 4	5	6	(4) Lower rated speed: Control-lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	(3) Torque control: rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	ca. 22	350	7,0	1275	9,0-9,1
	X	= 4,0							900	9,3-9,5
							100	min.19,0	500	9,6-9,7
							350	7,4-7,5		
ca. 52	8,0	1315-1325					720-780	= 2,0		
(2a)	3,6	1355-1385					100	max. 1,0		
	1600	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2b) Full-load stop, Test oil temp. 40°C (104°F): rev/min 1	cm³/1000 strokes 2	(6) Rotational-speed limitat, Note: changed to) rev/min 3	(3a) Fuel delivery characteristics: rev/min 4	cm³/1000 strokes 5	Starting fuel delivery Idle (5): rev/min 6	cm³/1000 strokes 7	(4a) Idle stop: rev/min 8	Control rod travel mm 9
1275	52,5-53,5 (51,0-55,0)	1315-1325*	900	48,5-50,5 (47,0-52,0)	100	12,8-13,4 mm RW	-	-
			500	45,5-47,5 (44,0-49,0)				

Checking values in brackets

* 1 mm less control rod travel than col 2

11.82

J11

Test Specifications Fuel Injection Pumps and Governors

(1A) WPP 001/4 DAF 11,6 t 4
1. Edition

En

PE 6 P 110 A 320 RS 385-1 RSV 250-750 P 7/479

supersedes –
company DAF
engine DK, DKT, DKS; DKA

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,8-2,9 (2,75-2,95) mm (from BDC) = RW 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm (2) 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
750	12,6+0,1	16,9-17,1	0,4(0,8)			
250	6,8-7,0	2,6-3,4	0,4(0,7)			

Adjust the fuel delivery from each outlet according to the values in ☐

B. Governor Settings

(1) Upper rated speed rev/min: Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	Intermediate rated speed 4	5	6	(4) Control-lever deflection in degrees 7	Lower rated speed: rev/min 8	Control rod travel mm 9	(3) Torque control: rev/min 10	Control rod travel mm 11
loose	700	0,3-1,0	–	–	–	ca. 18	250	6,9	–	–
	x = 3,75						250	6,8-7,0		
ca.44	11,6	790-795					245-305 = 2,0			
(2a)	4,0	810-825								
	950	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2b) Full-load stop, Test oil temp 40°C (104°F): rev/min 1	cm³/1000 strokes 2	(6) Rotational-speed limitat, Note: changed to ...) rev/min 3	(3a) Fuel delivery characteristics: rev/min 4	cm³/1000 strokes 5	Starting fuel delivery (5) Idle: rev/min 6	cm³/1000 strokes 7	(4a) Idle stop: rev/min 8	Control rod travel mm 9
750	169,0-171,0 (166,0-174,0)	790-795*	–	–	100	19,5-21,0 mm RW	–	–

Checking values in brackets

* 1 mm less control rod travel than col 2

11.82

J12

J12

Test Specifications Fuel Injection Pumps and Governors

40

(1A) WPP 001/4 VOL 7,0h
3. Edition
En

Testoil-ISO 4113

PE 6 P 110 A 320 RS 390 RSV 200 - 750 P 4/421

supersedes 5.81
company Volvo
engine TD 70 GG

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (2,95-3,15) 3,00-3,10 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm (2) 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	10,7+0,1	10,2 - 10,4	0,4(0,8)			2,5+0,1** (max.2,2-2,9)
300	5,4-5,6	1,9 - 2,9	0,3(0,6)			

Adjust the fuel delivery from each outlet according to the values in
**In the case of greater dispersion alter the delivery-valve spring pre-tension accordingly

B. Governor Settings

(1) Upper rated speed rev/min: Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	Intermediate rated speed 4	5	6	(4) Lower rated speed: Control-lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	(3) Torque control: rev/min 10	Control rod travel mm 11
loose	800 0,3-1,0 x = 4,0					ca.18	300	5,5		
ca.37 (2a)	750-755=9,7 775-785=4,0 1000=0,3-1,7									

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2b) Full-load stop, Test oil temp 40°C (104°F): rev/min 1	cm³/1000 strokes 2	(6) Rotational-speed limitat: Note changed to) rev/min 3	(3a) Fuel delivery charactenstics: rev/min 4	cm³/1000 strokes 5	Starting fuel delivery Idle (5): rev/min 6	cm³/1000 strokes 7	(4a) Idle stop: rev/min 8	Control rod travel mm 9
700	102,0 - 104,0 (97,0 - 105,0)	750-755*						

Checking values in brackets

* 1 mm less control rod travel than col 2

11.82

BOSCH Geschäftsbereich KH Kundendienst Kfz-Ausrüstung

J13

Test Specifications Fuel Injection Pumps and Governors (1A)

40

WPP 001/4 MB 5,7 x 6
1. Edition

En

PES 6 A 90 D 410 RS 2569 RSV 350-750 A0B 741 L

supersedes -
company Daimler-Benz
engine OM 352
52 kW (71 PS)

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,25-2,35 (2,20-2,40) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm (2) 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	11,2+0,1	5,4 - 5,5	0,3 (0,45			
350	7,4-7,6	0,5 - 1,1	0,2 (0,4)			

Adjust the fuel delivery from each outlet according to the values in ☐

B. Governor Settings

(1) Upper rated speed rev/min: Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	Intermediate rated speed 4	5	6	(4) Lower rated speed: Control-lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	(3) Torque control: rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	ca.15	350	7,5	-	-
	x = 2,0						100	min.19,5		
ca.26	10,2	750-755					420-480	= 2,0 **		
(2a)	4,0	801-814					550	max. 1,0		
	835	0,3-1,7								

** Set idle auxiliary spring at 2,0 mm.

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2b) Full-load stop, Test oil temp 40°C (104°F): rev/min 1	cm³/1000 strokes 2	(6) Rotational-speed limitat, Note changed to) rev/min 3	(3a) Fuel delivery characteristics: rev/min 4	cm³/1000 strokes 5	Starting fuel delivery idle (5): rev/min 6	cm³/1000 strokes 7	(4a) Idle stop: rev/min 8	Control rod travel mm 9
700	54,0-55,0 (52,0-57,0)	750-755 *	-	-	100	78,0-88,0	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

11.82

BOSCH Geschäftsbereich KH Kundendienst Kfz-Ausrüstung
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J14

J14

Test Specifications Fuel Injection Pumps and Governors

① WPP 001/4 IHC 9,0 a

1. Edition

En

PES 8 A 95 D 320 RS 2586 RQV 325-1400 AB1097 R

supersedes

company: IHC

engine: D9L
180 PS (133 kW)

Suction-gallery pressure 2,5 bar
overflow valve 1 417 413 019

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,55-2,65 (2,50-2,70) mm (from BDC) = RW 10,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1400	11,6+0,1	7,2 - 7,4	0,3 (0,6)			
325	7,3-7,4	0,9 - 1,5	0,3 (0,6)			

Adjust the fuel delivery from each outlet according to the values in ☐

B. Governor Settings

Upper rated speed: Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min (1a) (2a) 3	Intermediate rated speed: Degree of deflection of control lever 4	rev/min 5	Control rod travel mm (4) 6	Lower rated speed: Degree of deflection of control lever 7	rev/min 8	Control rod travel mm (3) 9	Sliding sleeve travel (1): rev/min 10	mm 11
ca. 67	10,6 4,0 1650	1140-1450 1535-1565 0-1,0	-	-	-	ca. 10 (3a)	100 325 680-740	min. 9,6 7,2 - 7,4 = 2,0	-	-

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery, Control-rod stop, Test oil temp. 40°C (104°F) (2): rev/min 1	cm³/1000 strokes 2	Rotational-speed limitation intermediate speed (2b) (4a): rev/min 3	Fuel delivery characteristics high idle speed (5a) (5b): rev/min 4	cm³/1000 strokes 5	Starting fuel delivery Idle switching point (6): rev/min 6	cm³/1000 strokes 7	Torque-control travel (5): rev/min 8	Control rod travel mm 9
1400	72,0-74,0 (70,0-76,0)	1440-1450*	800	max. 65,0	100	75,0-95,0 = 17,2 mm RW		
					325 170	9,0-15,0 -250		

Checking values in brackets

* 1 mm less control rod travel than col. 2

1.83

BOSCH Geschäftsbereich KH Kundendienst. Kfz-Ausrüstung

J15

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 RVI 8,8b

5. Edition En

PES 6 P 120 A 320 RS 417 RQV 300-1200 PA 527 K

Values apply to
engine nozzle-and-holder assemblies 1 688 901 019
and engine fuel-injection tubing 1 680 750 067

supersedes 8.81
company: RVI
engine: MIDS 062030
158 kW (215 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke 2,8 - 2,9 (2,75- 2,95) mm (from BDC)

Port-closing mark 9,5° camshaft after port closing of cylinder 1.

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1200	9,3-9,4	15,4 - 15,6	0,5(0,9)			
300	4,1-4,3	1,8 - 2,4	0,5(1,2)			

Adjust the fuel delivery from each outlet according to the values in ☐.

B. Governor Settings

Upper rated speed: Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min (1a) (2a) 3	Intermediate rated speed: Degree of deflection of control lever 4	rev/min 5	Control rod travel mm (4) 6	Lower rated speed: Degree of deflection of control lever 7	rev/min 8	Control rod travel mm (3) 9	Sliding sleeve travel (1): rev/min 10	mm 11
max.	1200	15,2-17,8	-	-	-	ca. 10	100	min. 5,7	250	0,4-0,7
ca. 60	8,3 4,0 1500	1240-1250 1330-1360 0-1,0				330-445 (3a)	300	4,1-4,3	570 880 200	3,6-3,8 5,3-5,4 8,0

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) (2): rev/min 1	cm³/1000 strokes 2	Rotational-speed limitation (2b) intermediate speed (4a): rev/min 3	Fuel delivery characteristics (5a) high idle speed (5b): rev/min 4	cm³/1000 strokes 5	Starting fuel delivery (6) Idle switching point: rev/min 6	cm³/1000 strokes 7	Torque-control travel (5): rev/min 8	Control rod travel mm 9
1200	154,0-156,0 (151,0-159,0)	1240-1250*	800	140,5-146,5 (137,5-149,5)	100	130,0-150,0	1200 350	9,3+0,1 7,7+0,2
			500	82,0- 88,0 (79,0- 90,0)	300	18,0- 24,0 100-220 (80-240)	750	8,5+0,2

Checking values in brackets

* 1 mm less control rod travel than col. 2

12.82

J16

BOSCH Geschäftsbereich KH Kundendienst. Kfz-Ausrüstung

J16

Testoil-ISO 4113

PE 8 P 130 A 500/5 LS 3053 (1)
PE 8 P 130 A 500/5 LS 3054 (2)

supersedes .82
company MWM - Südbremse
engine: TBD 602 V 16 - K

1 - 6 - 8 - 2 - 4 - 7 - 3 - 5 (1)
0 -45 -90 -90 -135-180-225-315° ± 0,5°(±0,75°)

1 - 6 - 2 - 8 - 4 - 7 - 3 - 5 (2)
0 -45 -90 -180-225-270-315-315°. ± 0,5° (± 0,75°)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,8 - 2,9 (2,75-2,95) mm (from BDC) RW = 21,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	12,0+0,1	34,7 - 35,1	0,5 (0,9)			
		(34,4 - 35,4)				
300	5,3-5,5	4,8 - 5,6	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in [ ].

B. Governor Settings

Checking of slider PRG check ①		Full-load speed regulation Setting point		Full-load speed regulation Test specifications ④		Idle speed regulation Setting point		Idle speed regulation Test specifications ⑤		Torque control ③	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12

Torque-control travel on flyweight assembly dimension a = mm Speed regulation At 1 mm less control rod travel

C. Settings for Fuel Injection Pump without Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) ②		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min 1	cm³/–1000 strokes 2	rev/min 3	rev/min 4	cm³/–1000 strokes 5	rev/min 6	Control rod travel mm RW 7
The full-load delivery is adjusted on the engine in accordance with the engine inspection sheet. The pumps operate in tandem.					100	19,5 - 21,0

Checking values in brackets

1.83

J17

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 KHD 1 i 1
4. Edition
En

PES 6 A 80 D 410/3 RS 2527 RQV 300-1400 AB 951 DL (1-2)
RS 2348 RQ 300/1400 AB 935 DL (3)
RQ 300/1325 AB 935 DL (4,7)
RQ 300/1250 AB 935 DL (5-6)

supersedes 3.82
company KHD
engine: F 6 L 913
(1-2) 96 kW (130PS) / 2800min^{-1}
(3) 96kW (130PS) / 2800min^{-1}
(4,7) 89kW (121PS) / 2650min^{-1}
(5) 89kW (121PS) / 2500min^{-1}
(6) 77kW (105PS) / 2500min^{-1}

Instructions for items 2 and 5, page 4!
All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke 1,9 - 2,0 (1,85-2,05) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1250	12,5+0,1	6,7 - 6,9	0,2(0,35)			
300	8,0-8,2	1,0 - 1,6	0,2(0,3)			

Adjust the fuel delivery from each outlet according to the values in [ ].

B. Governor Settings

.. RS 2527
RS 2348 m. RQV..AB 951 (1-2)

Upper rated speed: Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min (1a) (2a) 3	Intermediate rated speed: Degree of deflection of control lever 4	rev/min 5	Control rod travel mm (4) 6	Lower rated speed: Degree of deflection of control lever 7	rev/min 8	Control rod travel mm (3) 9	Sliding sleeve travel (1): rev/min 10	mm 11
max.	1470	15,2-17,8	-	-	-	ca. 12	100	min.7,5	250	0,4-1,0
ca. 65	11,0	1440-1450					300	5,9-6,1	630	2,8-3,5
	4,0	1545-1575					530-590	= 2,0	1020	4,6-5,0
	1700	0 - 1,0				410-650 (3a)			1400	7,6

Torque control travel a = 0,9 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery, Control-rod stop, Test oil temp. 40°C (104°F) (2): rev/min 1	cm³/1000 strokes 2	Rotational-speed limitation (2b) intermediate speed (4a): rev/min 3	Fuel delivery characteristics (5a) high idle speed (5b): rev/min 4	cm³/1000 strokes 5	Starting fuel delivery (6) Idle switching point: rev/min 6	cm³/1000 strokes 7	Torque-control travel (5): rev/min 8	Control rod travel mm 9
1400	69,0-70,0 (67,5-71,5)	1440-1450*	700	64,5-66,5 (63,0-68,0)	100	17,3-17,6 mm RW	1400	12,0+0,1
							1150	12,3+0,3
							700	12,8+0,2

Checking values in brackets

* 1 mm less control rod travel than col. 2

9.82

J18

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B. Governor Settings

Checking of slider PRG check ①		Full-load speed regulation				Idle speed regulation				Torque control ③	
		Setting point		Test specifications ④		Setting point		Test specifications ⑤			
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
700	19,2-20,8	700	20,0	11,0	1445-1460	300	8,5	100	min. 10,0	1400	12,0-12,1
VH ca. 46°				4,0	1540-1570			300	8,4-8,6	950	12,5-12,8
				1700	0 - 1,0			600-640=2,0mm		700	13,0-13,2
								750	max.1,0		

Torque-control travel on flyweight assembly dimension a = mm Speed regulation At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Testoil-ISO 4113

Full-load delivery on governor control lever ② Test oil temp 40°C (104°F)		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min	cm^3/-1000 strokes	rev/min	rev/min	cm^3/-1000 strokes	rev/min	cm^3/1000 strokes / Control rod travel mm
1	2	3	4	5	6	7
1400	69,0 - 70,0 (67,5 - 71,5)	-	700	64,5-66,5 (63,0-68,0)	-	-

Checking values in brackets

B. Governor Settings

..RS 2527 u. ..RS 2348 m. RQ 300/1325 AB 935 DL (4,7)

Checking of slider PRG check ①		Full-load speed regulation				Idle speed regulation				Torque control ③	
		Setting point		Test specifications ④		Setting point		Test specifications ⑤			
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
820	19,2-20,8	820	20,0	11,5	1370-1385	300	6,0	100	min. 7,5	1325	12,5-12,6
VH ca. 46°				4,0	1460-1490			300	5,9-6,1	775	13,6-13,7
				1600	0 - 1,0			500-540 = 2,0		875	13,2-13,4
								700	max. 1,0	1000	12,6-12,9

Torque-control travel on flyweight assembly dimension a = mm Speed regulation At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever ② Test oil temp 40°C (104°F)		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min	cm^3/-1000 strokes	rev/min	rev/min	cm^3/-1000 strokes	rev/min	cm^3/1000 strokes / Control rod travel mm
1	2	3	4	5	6	7
1325	68,5-69,5 (67,0-71,0)	700	775	72,5-75,5 (71,0-77,0)	-	-

Checking values in brackets

B. Governor Settings

..RS 2527 u. ..RS 2348 m. RQ 300/1250 AB935DL (5) (2)

Checking of slider PRG check (1)		Full-load speed regulation Setting point		Test specifications (4)		Idle speed regulation Setting point		Test specifications (5)		Torque control (3)	
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
800	19,2-20,8	800	20,0	11,5	1295-1310	300	8,5	100	min. 10	1250	12,5-12,6
VH ca. 46°				4,0	1370-1400			300	84,-8,6	950	13,0-13,3
								580-620=2,0		800	13,5-13,6
								750	max. 1,0		

Torque-control travel on flyweight assembly dimension a = 0,4 mm

Speed regulation At 1295-1310 min^{-1}

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp 40°C (104°F) (2)		Control rod stop (3a)	Fuel delivery characteristics (3b)		Starting fuel delivery Idle speed (6)	
rev/min	cm^3/-1000 strokes	rev/min	rev/min	cm^3/-1000 strokes	rev/min	Control rod travel cm^3/1000 strokes / mm
1	2	3	4	5	6	7
1250	66,5 - 67,5 (65,0 - 69,0)	-	800	64,0 - 66,0 (62,5 - 67,5)	-	-

Checking values in brackets

Testoil-ISO 4113

B. Governor Settings

..RS 2527 u. ..RS 2348 m. RQ 300/1250 AB 935 DL (6)

Checking of slider PRG check (1)		Full-load speed regulation Setting point		Test specifications (4)		Idle speed regulation Setting point		Test specifications (5)		Torque control (3)	
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
800	19,2-20,8	800	20,0	10,9	1295-1310	300	8,5	100	min.10,0	1250	11,9-12,0
VH ca. 46°				4,0	1360-1390			300	8,4-8,6	950	12,7-12,9
								580-620 = 2,0		800	13,5-13,6
								750	max. 1,0		

Torque-control travel on flyweight assembly dimension a = 0,65 mm

Speed regulation At 1295-1310 min^{-1}

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp 40°C (104°F) (2)		Control rod stop (3a)	Fuel delivery characteristics (3b)		Starting fuel delivery Idle speed (6)	
rev/min	cm^3/-1000 strokes	rev/min	rev/min	cm^3/-1000 strokes	rev/min	Control rod travel cm^3/1000 strokes / mm
1	2	3	4	5	6	7
1250	58,0 - 60,0 (56,5 - 61,5)	-	700	53,5 - 56,5 (52,0 - 54,0)	-	-

Checking values in brackets

J20

En

With item 2 - PES 6 A 80 D 410/3 RS 2527 + 2348 with RQV 300-1400 AB 951 DL

and item 5 - PES 6 A 80 D 410/3 RS 2527 + 2348 with RQ 300/1250 AB 935 DL

an engine code no. instead of the engine output is sometimes given by the custommer on the engine nameplate.

These engine code nos. 1025, 1032, 1035 and 0708 require a reduced full-load delivery:

n 1250 = 57,5 - 59,5 cm^3/1000 strokes
n 850 = 55,5 - 57,5 cm^3/1000 strokes

From engine no. 6216 324 the follwing applies:

n 1250 = 63,5 - 66,5 cm^3/1000 strokes
n 850 = 60,5 - 62,5 cm^3/1000 strokes.

This must at all costs be taken into account when new adjustements and control measurements are made.

Testoil-ISO 4113

PES 6 A 85 D 410/3 RS 2366 EP/RSV 325-1400 A8B674D, 707 D
325-1150 A8B674D, 707 D
RS 2415
RS 2532

superseded 11.77
company K H D
engine BF 6 L 913

Instructions P. 3

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,9 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	4,1 - 4,5	0,4			
	6	0,6 - 1,4				
200	9	1,4 - 2,2				

Adjust the fuel delivery from each outlet according to the values in [ ].

B. Governor Settings

EP/RSV 325-1400 A8B674D, 707D

Upper rated speed: Degree of deflection of control lever 1	rev/min 2	Control rod travel mm 3	Intermediate rated speed: Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	(4) Lower rated speed: Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	(3) Torque control: rev/min 10	Control rod travel mm 11
ca. 69	1400 1450 1500	16,0 10,5 4,0				ca. 20	325	5,5	1400	0
			without auxiliary spring				200	19 - 21		
							325	5,2-5,8		
ca. 68 (5)	1400 1510 1600	ca. 10,0 ca. 4,0 0,3 -1,5	with auxiliary spring				500 650	1,2-3,3 0 - 1,5	500	1,2-1,4

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2) Full-load stop, Test oil temp. 40°C (104°F): rev/min 1	cm³/1000 strokes 2	(6) Rotational-speed limitat. Note: changed to ... rev/min 3	(3a) Fuel delivery characteristics: rev/min 4	cm³/1000 strokes 5	Starting fuel delivery Idle: rev/min 6	cm³/1000 strokes 7	(3a) Idle stop: rev/min 8	Control rod travel mm 9
LDA	0,7 bar		LDA	0,7 bar				
	Instructions	P. 3			100	119,5-129,5	325	5,5**
			LDA 500	0 bar 43,5 - 47,5				
(increase by ± 1,0 cm³)								./.

Checking values in brackets

** 1 mm less control rod travel than col 2

6.82

The numbers denote the sequence of the tests

B. Governor Settings

EP/RSV 325-1150 A8B674D, 707 D

(1) Upper rated speed rev/min: Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	Intermediate rated speed 4	5	6	(4) Lower rated speed: Control-lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	(3) Torque control: rev/min 10	Control rod travel mm 11
ca. 56	1150	16,0				ca. 21	325	5,5	1130	0
	1200	11,1	without auxiliary spring				200	19 - 21		
	1250	5,4					325	5,5-5,8	500	1,0-1,2
			with auxiliary spring				500	1,4-3,4		
(2a)	1220	7,5-10,4					660	0 -1,5		
	1300	1,3-3,6								
	1380	0,3-1,5								

C. Settings for Fuel Injection Pump with Fitted Governor

(2b) Full-load stop, Test oil temp. 40°C (104°F): rev/min 1	cm³/1000 strokes 2	(6) Rotational-speed limitat, Note. changed to ..) rev/min 3	(3a) Fuel delivery charactenstics: rev/min 4	cm³/1000 strokes 5	Starting fuel delivery Idle (5): rev/min 6	cm³/1000 strokes 7	(4a) Idle stop: rev/min 8	Control rod travel mm 9
LDA	0,7 bar		LDA	0,7 bar	100	119,5-129,5;	325	5,5**
Instructions P. 3								
			LDA	0 bar				
			500	43,5 - 47,5				

Checking values in brackets

* 1 mm less control rod travel than col. 2

D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing / increasing pressure – in bar gauge pressure

Pump/governor	Setting: Gauge pressure = bar	Measurement: Gauge pressure = bar	Control rod travel-diminution/difference mm (1)
all governors	0,38	0,10	0,2 - 0,3 1,6 - 2,0

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

En

J23

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) (2)		Rotational-speed limitation intermediate speed (2b)	Fuel delivery characteristics high idle speed (5a) (5b)		Starting fuel delivery idle switching point (6)		Torque-control travel (5)	
rev/min	cm^3/1000 strokes	rev/min (4a)	rev/min	cm^3/1000 strokes	rev/min	cm^3/1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9

BF 6 L 913 - PES 6 A D..RS2366, 2415 | F or B output at .. min^{-1}

1400	88,0 - 90,0	1420	800	80,0 - 83,0	160 PS	n = 2800
1400	84,0 - 86,0	1420	800	66,0 - 69,0	142 PS	n = 2800
1325	90,5 - 92,5	1340	850	88,5 - 90,5	168 PS	n = 2650
1325	87,5 - 89,5	1340	800	82,5 - 85,5	160 PS	n = 2650
1325	82,5 - 84,5	1340	800	66,0 - 69,0	140 PS	n = 2650
1250	87,0 - 89,0	1270	800	84,5 - 87,5	160 PS	n = 2500
1250	83,0 - 85,0	1270	800	76,0 - 79,0	148 PS	n = 2500
1250	81,0 - 83,0	1270	800	69,5 - 72,5	140 PS	n = 2500
1200	86,0 - 88,0	1220	800	84,5 - 87,5	156 PS	n = 2400
1200	78,0 - 80,0	1220	800	68,0 - 71,0	135 PS	n = 2400
1165	84,0 - 86,0	1180	800	84,5 - 87,5	152 PS	n = 2330
1150	83,5 - 85,5	1165	800	84,5 - 87,5	152 PS	n = 2300
1150	80,0 - 82,0	1165	800	72,0 - 74,0	142 PS	n = 2300
1100	82,0 - 84,0	1115	800	84,5 - 87,5	147 PS	n = 2200
1075	82,0 - 84,0	1090	800	84,5 - 87,5	144 PS	n = 2150
1075	78,0 - 80,0	1090	800	76,0 - 79,0	136 PS	n = 2150
1050	76,5 - 78,5	1065	800	73,5 - 76,5	130 PS	n = 2100
1000	82,5 - 84,5	1015	800	84,5 - 87,5	137 PS	n = 2000
1000	77,0 - 79,0	1015	800	72,0 - 75,0	130 PS	n = 2000
900	82,0 - 84,0	910	800	84,5 - 87,5	125 PS	n = 1800
875	68,0 - 70,0	885	800	66,0 - 69,0	106 PS	n = 1750
750	85,0 - 87,0	760	-	-	105 PS	n = 1500
750	78,0 - 80,0	760	-	-	100 PS	n = 1500

Please note

1. ** With Liebherr exavators: single-lever control, therefore use shorter screw 1 423 400 031 and set this at 0.3 - 1.0 before the stop.

2. LDA adjustment to be carried out according to VDT-W-420, 5.

3. Dimension H = 22.5 mm = basic setting of LDA.

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test Specifications Fuel Injection Pumps and Governors (1)

WPP 001/4 MB 14,61
2. Edition

En

PE 8 P 120 A 320 LS 3807 ROV 300-1150 PA 526

supersedes 5.81
company Daimler-Benz
engine OM 422 LA
276 kW (375 PS)

1-8-7-2-6-3-5-4 je 45° ±0,5° (±0,75°)
Values apply to
engine nozzle-and-holder assemblies 1 688 901 019
and engine fuel-injection tubing 1 680 750 067

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke 4,0-4,1 (3,95-4,15) mm (from BDC) Zyl. 8

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
900	11,6+0,1	18,9-19,1	0,5(0,9)			
300	4,8-5,0	1,2-2,0	0,8(1,2)			
1150/600	11,6+0,1	C, Sp. 2 u.5	0,75(1,2)			
500	10,1+0,1	C, Sp. 5	0,75			

Adjust the fuel delivery from each outlet according to the values in [ ].

B. Governor Settings

Upper rated speed: Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min (1a) (2a) 3	Intermediate rated speed: Degree of deflection of control lever 4	rev/min 5	Control rod travel mm (4) 6	Lower rated speed: Degree of deflection of control lever 7	rev/min 8	Control rod travel mm (3) 9	Sliding sleeve travel (1): rev/min 10	mm 11
max.	1150	15,2-17,8	-	-	-	ca.10	100	min.6,0	250	1,0-1,2
							300	4,2-4,4	550	3,4-3,7
ca.55	10,6	1190-1200							850	4,9-5,3
	4,0	1230-1260								
	1350	0 - 1,0				320-465 (3a)			150	7,6

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F) (2): rev/min 1	cm³/1000 strokes 2	Rotational-speed limitation (2b) intermediate speed (4a): rev/min 3	Fuel delivery characteristics (5a) high idle speed (5b): rev/min 4	cm³/1000 strokes 5	Starting fuel delivery (5) idle switching point: rev/min 6	cm³/1000 strokes 7	Torque-control travel (5): rev/min 8	Control rod travel mm 9
LDA 900	0,7 bar 189,0-191,0 (186,0-194,0)	1190-1200*	LDA 600	0,7 bar 182,0-186,0 (179,0-189,0)	100	140,0-160,0		
LDA 1150	0,7 bar 185,0-189,0 (182,0-192,0)		LDA 500	0 bar 139,0-141,0 (136,0-144,0)				

Checking values in brackets

* 1 mm less control rod travel then col. 2

2.83

K1

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D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing / increasing pressure – in bar gauge pressure

MB 14,6 1

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel- diminution difference mm (1)
PE 8 P..LS 3807 + ROV.. PA 526	0,44	0,70 0 0,34	11,1-11,3 11,6-11,7 10,1-10,2 10,5-10,7

Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

K2

En

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 VOL 12,0 f2
1. Edition

En

PE 6 P 120 A 320 RS 3071 Z RQV 250-1100 PA 371/2R

supersedes -
company: Volvo
engine. TD 120 F

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke 2,6-2,7 (2,55-2,75) mm (from BDC) = RW 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	12,7+0,1	25,1-25,4	0,5(0,9)			
250	5,3-5,5	2,2-2,6	0,3(0,6)			

Adjust the fuel delivery from each outlet according to the values in [ ].

B. Governor Settings

Upper rated speed: Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min ①a ②a 3	Intermediate rated speed: Degree of deflection of control lever 4	rev/min 5	Control rod travel mm ④ 6	Lower rated speed: Degree of deflection of control lever 7	rev/min 8	Control rod travel mm ③ 9	Sliding sleeve travel ① rev/min 10	mm 11
max.	1150	15,2-17,8	-	-	-	ca. 12	100	min.7,0	200	0,7-0,9
ca. 46	11,7	1140-1150					250	5,3-5,5	500	2,9-3,3
	4,0	1215-1245					310-360=2,0		800	5,1-5,4
	1350	0 - 1,0							1100	7,9
						③a				

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ② rev/min 1	cm³/1000 strokes 2	Rotational-speed ②b limitation intermediate speed ④a rev/min 3	Fuel delivery characteristics ⑤a high idle speed ⑤b rev/min 4	cm³/1000 strokes 5	Starting fuel delivery ⑥ idle switching point rev/min 6	cm³/1000 strokes 7	Torque-control ⑤ travel rev/min 8	Control rod travel mm 9
LDA 700	0,9 bar 251,0-254,0 (248,0-257,0)	1140-1150*	LDA 700	0 bar 163,0-167,0 (160,0-170,0)	100	240,0-260,0 = RW 20,0 - 21,0 mm	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

1.83

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K3

D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing / increasing pressure – in bar gauge pressure

VCL 12,0 f 2

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel- diminution / difference mm (1)
PE6P..RS 3071Z + RQV..PA 371/2R	0,67	0,90 0 0,26	11,9-12,0 12,7-12,8 9,3- 9,4 10,1-10,3

Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

K4

En

Test Specifications Fuel Injection Pumps and Governors

40

(1A) WPP 001/4 MB 11,4 q
1. Edition
En

PES 6 P 120 A 820 LS 3112 RSV 350-1100 PO/500

supersedes –
company Daimler-Benz
engine OM407A
206 kW (280 PS)

Values apply to
engine nozzle-and-holder assemblies 1 688 901 019
and engine fuel-injection tubing 1 680 750 067

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke 4,0 - 4,1 (3,95-4,15) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm (2) 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	11,5+0,1	17,5-17,7	0,5 (0,9)			
350	4,7-4,9	1,6-2,2	0,8 (1,2)			
600	11,8+0,1					
500	10,5+0,1	C, Sp. 4 u. 5	0,75(1,2)			

Adjust the fuel delivery from each outlet according to the values in ☐

B. Governor Settings

(1) Upper rated speed rev/min Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	Intermediate rated speed 4	5	6	(4) Control-lever deflection in degrees 7	Lower rated speed rev/min 8	Control rod travel mm 9	(3) Torque control rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	ca. 25	350	4,8	1100	11,5-11,6
	x = 3,25								750	11,7-11,9
							420-460	= 2,0	600	11,8-11,9
ca. 48	10,5	1135-1145								
(2a)	4,0	1215-1245								
	1300	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2b) Full-load stop Test oil temp. 40°C (104°F) rev/min 1	cm³/1000 strokes 2	(6) Rotational-speed limitat Note changed to) rev/min 3	(3a) Fuel delivery charactenstics rev/min 4	cm³/1000 strokes 5	Starting fuel delivery (5) Idle rev/min 6	cm³/1000 strokes 7	(4a) Idle stop rev/min 8	Control rod travel mm 9
LDA 1100	0,7 bar 175,0-177,0 (172,0-180,0)	1135-1145*	LDA 600	0,7 bar 177,0-183,0 (174,0-186,0)	100	150,0-170,0	-	-
			LDA 500	0 bar 143,0-145,0 (140,0-148,0)				

Checking values in brackets

* 1 mm less control rod travel than col 2

1.83

BOSCH Geschäftsbereich KH Kundendienst Kfz-Ausrüstung

K5

D. Adjustment Test for Manifold Pressure Compensator

MB 11.4 q

Test at n = 500 rev/min decreasing / increasing pressure – in bar gauge pressure

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel- diminution difference mm (1)
PES6P..LS3112 + RSV..PO/500	0,70		11,8 - 11,9
		0,40	10,7 - 10,9
		0,50	11,6 - 11,7
		0	10,5 - 10,6

Notes.

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

K6

En

Test Specifications Fuel Injection Pumps and Governors

40

WPP 001/4 DAF 11,6 o 4
1. Edition

En

PE 6 P 120 A 320 RS 415-1 RSV 250-1100 P5/474

supersedes:
company DAF
engine DKS-1160 P

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,8-2,9 (2,75-2,95) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm (2) 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
650	11,9+0,1	18,8-19,2	0,4(0,8)			
250	6,7-6,9	1,9-2,3	0,4(0,7)			

Adjust the fuel delivery from each outlet according to the values in ☐

B. Governor Settings

(1) Upper rated speed rev/min			Intermediate rated speed			(4) Lower rated speed			(3) Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control-lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800 0,3-1,0		-	-	-	ca. 24	250	6,3	650	12,1-12,2
	x = 5,0						250	6,7-6,9	1100	10,4-10,6
cä.53	9,4	1140-1150					410-475	= 2,0	800	11,5-11,7
(2a)	4,0	1200-1230							900	10,9-11,2
	1350	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2b) Full-load stop Test oil temp 40°C (104°F)		(6) Rotational-speed limitat	(3a) Fuel delivery charactenstics		Starting fuel delivery (5) Idle		(4a) Idle stop	
rev/min 1	cm³/1000 strokes 2	Note: changed to) rev/min 3	rev/min 4	cm³/1000 strokes 5	rev/min 6	cm³/1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 650	0,7 bar 188,0-192,0 (185,0-195,0)	1140-1150*	LDA 1100	0,7 bar 187,0-191,0 (184,0-194,0)	100	310,0-350,0 = 19,5 - 21,0 mm RW	-	-
			LDA 600	0,7 bar 133,0-137,0 (130,0-140,0)				

Checking values in brackets

* 1 mm less control rod travel than col 2

1.83

BOSCH Geschäftsbereich KH Kundendienst Kfz-Ausrüstung.

K7

D. Adjustment Test for Manifold Pressure Compensator

Test at n = 600 rev/min decreasing / increasing pressure – in bar gauge pressure

DAF 11,6 o 4

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel- diminution / difference mm (1)
PE 6 P.. RS 415-1 + RSV..P 5/474	0,27	0,70 0 0,12	11,4-11,5 11,9-12,0 9,8-9,9 10,2-10,4

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

K8

PES 6 P 120 A 420 RS 3063, Z RQ 200-1100 PA 279-1

Values apply to
engine nozzle-and-holder assemblies 1 688 901 019
and engine fuel-injection tubing 1 680 750 067

supersedes-

company: Saurer
engine: D 3 KTUB
155 kW (211 PS)

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 3,2-3,3 (3,15-3,35) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	9,0-9,1	13,4-13,8	0,5(0,8)			
250	5,6-5,8	1,3-1,9	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in ☐.

B. Governor Settings

Checking of slider PRG check ①		Full-load speed regulation				Idle speed regulation				Torque control ③	
		Setting point		Test specifications ④		Setting point		Test specifications ⑤			
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
550	15,6-16,4	550	16,0	8,0 4,0 1350	1145-1160 1180-1210 0-1,0	250	5,7	100 250 340-380	min. 7,1 5,6-5,8 =2,0	1100 910 860 550	9,0-9,1 9,1-9,3 9,2-9,6 9,5-9,6

Torque-control travel on flyweight assembly dimension a = 0,3 mm

Speed regulation: At 1145-1160 min^{-1}

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever ② Test oil temp. 40°C (104°F)		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min 1	cm³/-1000 strokes 2	rev/min 3	rev/min 4	cm³/-1000 strokes 5	rev/min 6	Control rod travel mm cm³/1000 strokes 7
LDA 1100	0,7 bar 134,0-138,0 (131,0-141,0)	-	LDA 700 LDA 400	0,7 bar 143,0-147,0 (140,0-150,0) 0 bar 89,0-93,0 (86,0-96,0)	100	210,0-240,0

Checking values in brackets

K9

D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing / increasing pressure – in bar gauge pressure

SAU 12,0 e

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel- diminution / difference mm (1)
PES 6 P..RS3063,Z +RQ..PA 279-1	0,26	0,70 0 0,11	9,3-9,4 9,5-9,6 8,3-8,4 8,6-8,8

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

K10

Test Specifications Fuel Injection Pumps and Governors

40

WPP 001/4 SCA 11,0 r 1

3. Edition

En

Testoil-ISO 4113

PE 6 P 110 A 720 RS3040 RQ 250/1100 PA411R

supersedes 8.79

company: Scania

engine: DS 11

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 3,30-3,40 (3,25-3,45) mm (from BDC) RW 9,0 - 12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	13,0+0,1	15,7 - 15,9	0,4(0,8)			2,5+0,1** (max.2,2-2,9)
225	3,9-4,1	0,9 - 1,3	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in [ ].

** In the case of greater dispersion after the delivery-valve spring pre-tension accordingly.

B. Governor Settings

Checking of slider PRG check (1)		Full-load speed regulation Setting point		Test specifications (4)		Idle speed regulation Setting point		Test specifications (5)		Torque control (3)	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
700	15,6-16,4	700	16,0	11,5 4,0 1350	1140-1150 1230-1260 0 - 1,0	225	3,3	100 225 255-315	min.5,3 3,9-4,1 =2,0	-	-

Torque-control travel on flyweight assembly dimension a = - mm

Speed regulation: At 1140-1150 min^{-1}

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) (2)		Control rod stop (3a)	Fuel delivery characteristics (3b)		Starting fuel delivery Idle speed (6)	
rev/min 1	cm³/-1000 strokes 2	rev/min 3	rev/min 4	cm³/-1000 strokes 5	rev/min 6	cm³/1000 strokes / Control rod travel mm 7
LDA 1100	0,5 bar 157,0 - 159,0 (154,0 - 162,0)		LDA 600	0,5 bar 161,0 - 165,0 (158,0 - 168,0)	100	240,0 - 290,0
			LDA 500	0 bar 126,0 - 130,0 (123,0 - 133,0)	225	9 - 13 **

Checking values in brackets

K11

1.83

D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing / increasing pressure - in bar gauge pressure

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel - diminution difference mm (1)
3040 + 411R	0,38		12,7-12,8
		0,50	13,0-13,1
		0	11,7-11,8
		0,28	12,0-12,2

Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 DAF 11,6 u
2. Edition
En

Testoil-ISO 4113

PE 6 P 110 A 720 RS 441 RSV 250-1200 P5/493

supersedes 8.81
company DAF
engine: D HS 825

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,8 - 2,9 (2,75-2,95) mm (from BDC) RW 9,0 - 12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
850	12,2+0,1	13,6 - 13,8	0,4(0,8)			
250	5,0-5,2	0,7 - 1,2	0,4(0,7)			

Adjust the fuel delivery from each outlet according to the values in [ ].

B. Governor Settings

Upper rated speed: Degree of deflection of control lever 1	rev/min 2	Control rod travel mm 3	Intermediate rated speed: Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	(4) Lower rated speed: Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	(3) Torque control: rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	ca.24	250	4,6	400	12,4+0,1
	x =	5,0							300	12,6+0,5
(5) ca.58	11,2	1240-1250					250	5,0-5,2		
	4,0	1310-1340					525-535=2,0mm			
	1500	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2) Full-load stop: Test oil temp. 40°C (104°F) rev/min 1	cm³/1000 strokes 2	(6) Rotational-speed limitat. Note: changed to ... rev/min 3	(3a) Fuel delivery characteristics: rev/min 4	cm³/1000 strokes 5	Starting fuel delivery Idle: rev/min 6	cm³/1000 strokes 7	(5a) Idle stop: rev/min 8	Control rod travel mm 9
LDA	0,7 bar		LDA	0 bar				
850	136,0-138,0 (133,0-141,0)	1240-1250 *	600	91,0-94,0 (88,0-97,0)	100	245,0-285,0 RW 19,5-21,0 mm	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

1.83

K13

K13

D. Adjustment Test for Manifold Pressure Compensator

Test at n = 600 rev/min decreasing / increasing pressure – in bar gauge pressure

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel- diminution difference mm (1)
.. RS 441 + .. P5/493	0,36		11,7 - 11,8
		0,70	12,2 - 12,3
		0	10,4 - 10,5
		0,30	11,0 - 11,2

Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MB 19,1 m 1
2. Edition
En

Testoil-ISO 4113

PE 12 P 110 A 320 LS 832 RQV 350-1150 PA 493 R

1 - 5 - 9 - 8 - 3 - 4 - 11- 10- 2 - 6 - 7 - 12
0 -15 -60 -75 -120-135-180-195-240-255-300-315 ± 0,5° (±0,75°)

~~supersedes~~ 10.81
company: Daimler-Benz
engine: OM 404 A
386 kW (525 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 3,2-3,3 (3,15-3,35) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1130	13,1+0,1	14,0 - 14,2	0,4(0,8)			
350	7,5-7,7	1,8 - 2,4	0,4(0,7)			

Adjust the fuel delivery from each outlet according to the values in [ ].

B. Governor Settings

Upper rated speed: Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min (1a) (2a) 3	Intermediate rated speed: Degree of deflection of control lever 4	rev/min 5	Control rod travel mm (4) 6	Lower rated speed: Degree of deflection of control lever 7	rev/min 8	Control rod travel mm (3) 9	Sliding sleeve travel (1): rev/min 10	mm 11
max.	1150	15,2-17,8	-	-	-	ca.18 (3a)	100	min.8,6	300	1,4-1,6
							350	7,0-7,2	600	3,6-3,9
ca.66	12,1	1185-1195					690-750=2,0mm		850	5,1-5,4
	4,0	1295-1325							1150	7,9
	1450	0 - 1,0								

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) (2): rev/min 1	cm³/1000 strokes 2	Rotational-speed limitation (2b) intermediate speed (4a): rev/min 3	Fuel delivery characteristics high idle speed (5a) (5b): rev/min 4	cm³/1000 strokes 5	Starting fuel delivery (6) Idle switching point: rev/min 6	cm³/1000 strokes 7 mm RW	Torque-control travel (5): rev/min 8	Control rod travel mm 9
LDA	0,7 bar	1185-1195*	LDA	0 bar	100	19,5-21,0	-	-
1130	140,0-142,0 (137,0-145,0)		500	121,0-123,0 (118,0-126,0)				
1130	100,0-102,0 ** (97,0-105,0)							

Checking values in brackets

* 1 mm less control rod travel than col. 2

12.82

BOSCH
Geschäftsbereich KH. Kundendienst. Kfz-Ausrustung.

D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing / increasing pressure – in bar gauge pressure

MB 19,1 m 1

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel- diminution difference mm (1)
PE 12 P.. LS 832 + .. PA 493 R	0,7	0 0,4 0,33	13,1-13,2 12,3-12,4 12,9-13,0 12,5-12,7

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

** Adjusted at the inner lever of the reduced-delivery stop.

K16

En 1145

Test Specifications Fuel Injection Pumps and Governors

(1) WPP 001/4 Vol.7,0 i

2. Edition

En

Testoil-ISO 4113

PE 6 P 110 A 320 RS 413 Y RQV 250-1200 PA 499

supersedes 80

company: Volvo

engine: TD 70 F
180 kW(245PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (2,95-3,15) 3,00-3,10 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	12,7+0,1	12,9 - 13,1	0,4(0,8)			2,5 ± 0,1**
250	5,2-5,4	0,9 - 1,3	0,3(0,6)			(max.2,2-2,9)

Adjust the fuel delivery from each outlet according to the values in [ ].

** In the case of greater dispersion alter the delivery-valve spring pre-tension accordingly.

B. Governor Settings

Upper rated speed: Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min (1a) (2a) 3	Intermediate rated speed: Degree of deflection of control lever 4	rev/min 5	Control rod travel mm (4) 6	Lower rated speed: Degree of deflection of control lever 7	rev/min 8	Control rod travel mm (3) 9	Sliding sleeve travel (1): rev/min 10	mm 11
max.	1200 1500	15,2-17,8 0 - 1				ca.9	100 250	min.6,9 5,2-5,4		
ca.63	11,7 4,0	1240-1250 1375-1405				300-450 (3a)				

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) (2): rev/min 1	cm³/1000 strokes 2	Rotational-speed limitation (2b) intermediate speed (4a): rev/min 3	Fuel delivery characteristics high idle speed (5a) (5b): rev/min 4	cm³/1000 strokes 5	Starting fuel delivery (6) Idle switching point: rev/min 6	cm³/1000 strokes 7	Torque-control travel (5): rev/min 8	Control rod travel mm 9
LDA 700	0,7 bar 129,0-131,0 (126,0-134,0)	1240-1250*	LDA 700	0 bar 78,5 - 80,5 (75,5 - 83,5)	100	160,0-200,0		

Checking values in brackets

* 1 mm less control rod travel than col. 2

12.82

K17

BOSCH Geschäftsbereich KH. Kundendienst. Kfz-Ausrüstung.

D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing / increasing pressure – in bar gauge pressure

VOL 7,0 i

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel- diminution / difference mm (1)
413 Y + 499	0,7	0,53 0,20 0	12,7 - 12,8 12,3 - 12,4 10,5 - 10,7 10,1 - 10,3

Notes.

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

K18

n 1445

Test Specifications Fuel Injection Pumps ② and Governors

WPP 001/4 DAF 6,2 i
7. Edition
En

Testoil-ISO 4113

PE 6 A 90 D 320 RS 2547 RQ 250/1200 AB 1022 R
See Service Information VDT-I-DAT 004
Specifications apply to test tubing 1 680 750 015.

supersedes 2.82
company DAF
engine: DT 615
113 kW (153 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing difference between control-rod travel 9 mm and max. = 2,5 - 3,5° camshaft.

Port closing at prestroke 2,20-2,30 (2,15-2,35) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	10,8+0,1	7,1 - 7,3	0,3(0,45)			
250	6,9-7,1	1,1 - 1,5	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in [ ].

B. Governor Settings

Checking of slider PRG check ①		Full-load speed regulation Setting point		Full-load speed regulation Test specifications ④		Idle speed regulation Setting point		Idle speed regulation Test specifications ⑤		Torque control ③	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
650	19,6-20,4	650	20,0	9,8	1245-1265	250	8,5	100	min. 10,0	-	-
								250	8,4-8,6		
								405-465	=2,0		
VH = max. 46°				4,0	1340-1370			550	max. 1,0		
				1500	0-1,0						

Torque-control travel on flyweight assembly dimension a = - mm

Speed regulation: At 1245-1265 min^{-1}

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) ②		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min 1	cm³/-1000 strokes 2	rev/min 3	rev/min 4	cm³/-1000 strokes 5	rev/min 6	Control rod travel cm³/1000 strokes / mm 7
LDA 1000	0,7 bar 71,0 - 73,0 (69,0 - 75,0)		LDA 600	0 bar 50,0 - 52,0 (48,0 - 54,0)	- 250	- 7,0

Checking values in brackets

2.83

K19

D. Adjustment Test for Manifold Pressure Compensator

Test at n = 1000 rev/min decreasing / increasing pressure – in bar gauge pressure

DAF 6,2 i

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel- diminution / difference mm (1)
..RS 2547 + RQ..AB 1022 R	0,70	0,27 0,16 0	10,8 - 10,9 10,6 - 10,7 9,9 - 10,1 9,8 - 10,0

Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4
En 4. Edition

supersedes 6.82

PES 6 MW 100/320 RS 1016
RQV 300-1300 MW 25
Komb. 0 403 446 123

company RVI
engine: MIDR06.02-12
125kw (170PS)

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing mark 10,5° after port closing.

Port closing at prestroke 3,00-3,10 (2,95-3,15) mm (from BDC RW = 9,0-12,0

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1300	$11,1^{+0,1}$	8,9 - 9,1	0,35(0,6)			
300	5,8-6,0	0,95- 1,35	0,35(0,55)			
900	$11,1^{+0,1}$		0,5 (0,7)			
500	$10,0^{+0,1}$		0,35(0,6)			

Adjust the fuel delivery from each outlet according to the values in ☐.

B. Governor Settings

Upper rated speed: Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm (1a) rev/min (2a) 3	Intermediate rated speed: Degree of deflection of control lever 4	rev/min 5	Control rod travel mm (4) 6	Lower rated speed: Degree of deflection of control lever 7	rev/min 8	Control rod travel mm (3) 9	Sliding sleeve travel (1) rev/min 10	mm 11
max.	1300 1600	15,2-17,8 0 - 1,0				ca. 13	100 300 490-550	min. 7,5 5,8- 6,0 = 2,0		
ca. 62	10,1 4,0	1340-1350 1450-1580				(3a)				

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) (2) rev/min 1	cm³/1000 strokes 2	Rotational-speed limitation (2b) intermediate speed (4a) rev/min 3	Fuel delivery characteristics (5a) high idle speed (5b) rev/min 4	cm³/1000 strokes 5	Starting fuel delivery (6) idle switching point rev/min 6	cm³/1000 strokes 7	Torque-control travel (5) rev/min 8	Control rod travel mm 9
LDA 1300	0,67 bar 89,0-91,0 (87,0-93,0)	1340-1350*	LDA 900	0,67 bar 86,5 - 90,5 (84,5 - 92,5)	100 300	min. 100,0 9,5 - 13,5 (7,0 - 16,0)		
			LDA 500	0 bar 59,0 - 61,0 (57,0 - 63,0)	100-230 (80-250)			

Checking values in brackets

* 1 mm less control rod travel than col. 2

11.82

D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min ~~decreasing~~ increasing pressure – in bar gauge pressure

RVI

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel- diminution difference mm (1)
RS 1016 + MW25	0,25	0,67	10,8 - 10,9
		0	11,1 - 11,2
		0,22	10,1 - 10,2
			10,3 - 10,4

Notes.

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specification Fuel Injection Pumps and Governors

Testoil-ISO 4113

40

WPP 001/4 DEE 6,6 a
1. Edition

En

PES 6 A 95 D 410 RS 2380
RS 2508

EP/RSV 400-1100 A2B770DL

supersedes -

company: John Deere

engine: 6404 T

Manifold-pressure compensator (LDA) adjustement page 2!

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,90-2,00 (1,85-2,05) mm (from BDC)

Port-closing mark 14° after port closing.

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	7,5 - 8,0	0,4			
	6	3,2 - 4,2				
200	6	0,5 - 1,4				

Adjust the fuel delivery from each outlet according to the values in [ ].

B. Governor Settings

Upper rated speed			Intermediate rated speed			(4) Lower rated speed			(3) Torque control	
Degree of deflection of control lever 1	rev/min 2	Control rod travel mm 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
ca.44	1100	16,0				ca.21	400	5,1	1080	0
	1180	9,8	without auxiliary spring				200	19 - 21		
	1220	6,0					400	5,5-5,7	450	0,7-1,0
(5) ca.43	1100	ca. 9,8	with auxiliary spring				500	3,3-4,4		
	1200	ca. 5,0					720	0 - 1		
	1400	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2) Full-load stop		(6) Rotational-speed limitat.	(3a) Fuel delivery characteristics		Starting fuel delivery idle		(5a) Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ...						Control rod travel
rev/min 1	cm³/1000 strokes 2	rev/min 3	rev/min 4	cm³/1000 strokes 5	rev/min 6	cm³/1000 strokes 7	rev/min 8	mm 9
LDA	0,7 bar		LDA	0,7 bar				
1100	85,5 - 87,5	1140-1150 *	750	95,0 - 98,0	100	19,0-21,0	400	5,6
	(83,5-89,5)	(1135-1155)		(93,0-100,0)		mm RW		
			LDA	0 bar				
			550	63,5-69,5				
				(61,5-71,5)				

./.

Checking values in brackets

* 1 mm less control rod travel than col 2

11.82

BOSCH Geschäftsbereich KH Kundendienst Kfz-Ausrüstung
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D. Adjustment Test for Manifold Pressure Compensator

DEE 6,6 a

Preliminary adjustement, dimension H = 21,8 mm

Test at n = 550 rev/min decreasing / increasing (XXXXXXX) pressure – in bar gauge pressure

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel- diminution / difference (XXXXXXXX) mm (1)
2380 + 770DL 2508 + 770DL	0,45	0,14 - 0,16	- 0,1 - 0,2 - 1,5 - 1,7
Change-over point (Hydraulic measurement)	max. 0,76	mind. 0,48	9 - 11 mm RW 19 - 21 mm RW

Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

K24

Test Specifications Fuel Injection Pumps ② and Governors

WPP 001/4 MB 14,6 i
3. Edition
En

PE 8 P 120 A 320 LS 3807 RO 300/1150 PA 511

supersedes 3.82
company: Damiler-Benz
engine: OM 422 LA
276 kW(375 PS)

1-8-7-2-6-3-5-4 je 45° ±0,5° (±0,75°)
Values apply to
engine nozzle-and-holder assemblies 1 688 901 019
and engine fuel-injection tubing 1 680 750 067

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke 4,0-4,1 (3,95-4,15) mm (from BDC) Zyl. 8

Rotational speed rev/mn 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
900	11,6+0,1	18,9-19,1	0,5(0,9)			
300	4,8-5,0	1,2-2,0	0,8(1,2)			
1150/600	11,6+0,1	C, Sp.2 u. 5	0,75(1,2)			
500	10,1+0,1	C, Sp. 5 ,	0,75			

Adjust the fuel delivery from each outlet according to the values in [ ].

B. Governor Settings

Checking of slider PRG check ①		Full-load speed regulation Setting point		Test specifications ④		Idle speed regulation Setting point		Test specifications ⑤		Torque control ③	
rev/mn 1	Control rod travel mm 2	rev/mn 3	Control rod travel mm 4	Control rod travel mm 5	rev/mn 6	rev/mn 7	Control rod travel mm 8	rev/mn 9	Control rod travel mm 10	rev/mn 11	Control rod travel mm 12
600	19,1-20,8	600	20,0	10,7	1190-1205	300	4,3	100	min.6,0	-	-
VH =	max. 46°			4,0	1250-1280			300	4,2-4,4		
				1350	0 - 1,0			335-	375=2,0		

Torque-control travel – on flyweight assembly dimension a = mm

Speed regulation: At 1190-1205 min^{-1}

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) ②		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/mn 1	cm³/-1000 strokes 2	rev/mn 3	rev/mn 4	cm³/-1000 strokes 5	rev/min 6	Control rod travel cm³/1000 strokes / mm 7
LDA 900	0,7 bar 189,0-191,0 (186,0-194,0)	-	LDA 600	0,7 bar 182,0-186,0 (179,0-189,0)	100	140,0-160,0
LDA 1150	0,7 bar 185,0-189,0 (182,0-192,0)		LDA 500	0 bar 139,0-141,0 (136,0-144,0)		

Checking values in brackets

2.83

D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing / increasing pressure – in bar gauge pressure

MB 14,6 i

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel- diminution difference mm (1)
PE 8 P .. LS 3807	0,44		11,1-11,3
+ RQ .. PA 511		0,70	11,6-11,7
		0	10,1-10,2
		0,34	10,5-10,7

Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Distributor-Type Fuel Injection Pump

WPP 001/4 IHC 3,5c 6
1.Edition

En

Testoil-ISO 4113

VA 4/100 H 1250 CR 68

0 460 304 195

supersedes-

company IHC

engine D 206-TD 7 C

Nozzle-and-holder assembly
1 688 901 020 (172 + 3 bar)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers
Test Intructions and Test Equipment VDT-WPP 161/4 B
Pre-setting see reverse side

Pre-stroke setting 0,5 mm ± 0,04
Setting of the pointer at a stroke of 1 mm in relation to outlet "A".

1. Settings

	rev/min	Settings		Charge-air press kp/cm²	Difference in delivery cm³
1 1 Timing device travel	800	4,2-5,2	mm		
1 2 Supply pump pressure	800	5,1-5,6	kp/cm²		
1 3 Full-load delivery without charge-air pressure	800	60,5-61,5	cm³/1000 strokes		2,5
Full-load delivery with charge-air pressure	--	--	cm³/1000 strokes		
1 4 Idle speed regulation	350	12,0-18,0	cm³/1000 strokes		3,0
1 5 Start 196 bar	100	mind.90,0	cm³/1000 strokes		
1 6 Full-load speed regulation	1300	21,0-29,0	cm³/1000 strokes		

2. Test Specifications

Checking values in brackets

2 1 Timing device	rev/min	180-300(150-330)			
		Beginn 400	800	1100	1150-1250
	mm	1,1-2,1(0,8-2,4)	(3,9-5,5)	6,1-7,1(5,8-7,4)	7,0-7,7(6,7-8,0)
2 2 Supply pump	rev/min	200	800		1250
	kp/cm²	2,1-2,6(1,9-2,8)	(4,9-5,8)		6,8-7,3(6,6-7,5)
Overflow delivery	rev/min	500			1250
	cm³/10 s	55-100(40-110)			55-100(40-110)

2 3 Fuel deliveries

Speed control lever	Delivery lever	rev/min	cm³/1000 strokes		Charge-air pressure kp/cm²
End stop	Full	1350-1400	0		
		(1330-1420)			
		1300		(20,0-30,0)	
		1230-1250	Beginn		
		1100	60,0-63,0	(59,0-64,0)	
		800		(60,0-62,0)	
		600	53,0-56,0	(52,0-57,0)	
	Stop	1250	0		
Idle stop	Full	390-440	0		
		(370-460)			
		350		(11,0-19,0)	
	Start	100	mind.90,0		
End stop		220-300			

L3

BOSCH Geschäftsbereich KH Kundendienst, Kfz-Ausrüstung

Angle to the stop-plate	Pre-setting dimensions
Pump $\alpha = 25 \pm 4^{o}$ $\beta = 40 \pm 8^{o}$ $\gamma = 30 - 8^{o}$ $\delta = 60 \pm 8^{o}$	Pump Dimension IV 3,0 mm Dimension V 24,6 mm

Test Specifications Distributor-Type Fuel Injection Pump

WPP 001/4 IHC 3,5c7
1. Edition
En

Testoil-ISO 4113

VA 4/100 H 1250 CR 68-1
0 460 304 231

supersedes
company IHC
engine D 206

Nozzle-and-holder assembly
1 688 901 020 (172 + 3 bar)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers
Test Intructions and Test Equipment VDT-WPP 161/4 B
Pre-setting see reverse side

Pre-stroke setting 0,5 mm
Setting of the pointer at a stroke of 1 mm in relation to outlet "A".

1. Settings

	rev/min	Settings		Charge-air press kp/cm²	Difference in delivery cm³
1 1 Timing device travel	800	4,2-5,2	mm		
1 2 Supply pump pressure	800	5,3-5,8	kp/cm²		
1 3 Full-load delivery without charge-air pressure	800	55,5-56,5	cm³/1000 strokes		2,5
Full-load delivery with charge-air pressure	--	--	cm³/1000 strokes		
1 4 Idle speed regulation	350	12,0-18,0	cm³/1000 strokes		3,0
1 5 Start	100	min. 90,0	cm³/1000 strokes		
1 6 Full-load speed regulation	1300	31,0-39,0	cm³/1000 strokes		

2. Test Specifications

Checking values in brackets

2 1 Timing device	rev/min	170-320(140-350)				
		Beginn	400	800	1000	1100-1250
	mm	1,2-2,2(0,9-2,5)	(3,9-5,5)	5,7-6,7(5,4-7,0)		7,0-7,7(6,7-8,0)
2 2 Supply pump	rev/min	200	800			1250
	kp/cm²	2,1-6,2(1,9-2,8)	(5,1-6,0)			7,1-7,6(6,9-7,8)
Overflow delivery	rev/min	500				1250
	cm³/10 s	55-100(40-110)				55-100(40-110)

2 3 Fuel deliveries

Speed control lever	Delivery lever	rev/min	cm³/1000 strokes		Charge-air pressure kp/cm²
End stop	Full	1380-1430	0		
		(1360-1450)			
		1300		(30,0-40,0)	
		1260-1280	Beginn		
		1200	51,0-54,0	(50,0-55,0)	
		800		(55,0-57,0)	
		500	48,0-51,0	(47,0-52,0)	
	Stop	1250	0		
Idle stop	Full	420-470	0		
		(400-490)			
		350		(11,0-19,0)	
	Start	100	mind.90,0		
End stop		220-320			

L5

BOSCH
Geschäftsbereich KH Kundendienst Kfz-Ausrüstung

Angle to the stop-plate	Pre-setting dimensions
Pump $\alpha = 25 \pm 4^{o}$ $\beta = 40 \pm 8^{o}$ $\gamma = 30 - 8^{o}$ $\delta = 60 \pm 8^{o}$	Pump Dimension $\bar{IV}$ - mm Dimension $\bar{\bar{V}}$ - mm

L6

Test Specifications Distributor-Type Fuel Injection Pump

WPP 001/4 HAN 3,1a 5
2. Edition
En

Testoil-ISO 4113

VA 6/100 H 1700 CR 119
CR 119-1

0 460 306 108
0 460 306 109

Nozzle-and-holder assembly
1 688 901 020 (172 + 3 bar)

supersedes 6.82
company Hanomag
engine D 161 L

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers
Test Intructions and Test Equipment VDT-WPP 161/4 B
Pre-setting see reverse side

Pre-stroke setting 0,3 mm ± 0,02 (± 0,04)
Setting of the pointer at a stroke of 1 mm in relation to outlet "A".

1. Settings

	rev/min	Settmgs		Charge-air press kp/cm²	Difference in delivery cm³
1 1 Timing device travel	1500	4,3-5,1	mm		
1 2 Supply pump pressure	1500	6,3-6,8	kp/cm²		
1 3 Full-load delivery without charge-air pressure	1200	49,0-50,0	cm³/1000 strokes		2,5
Full-load delivery with charge-air pressure	--	--	cm³/1000 strokes		
1 4 Idle speed regulation	300	12,0-18,0	cm³/1000 strokes		3,0
1 5 Start	100	mind. 60,0	cm³/1000 strokes		
1 6 Full-load speed regulation	1800	26,0-34,0	cm³/1000 strokes		

2. Test Specifications

Checking values in brackets

2 1 Timing device	rev/min	650-810(620-840)	1500	1550-1700
	mm	Beginn	(4,0-5,4)	5,2-5,9(4,9-6,2)
2 2 Supply pump	rev/min	200	1500	1700
	kp/cm²	1,2-1,7(1,0-1,9)	(6,1-7,0)	7,0-7,5(6,8-7,7)
Overflow delivery	rev/min	500		1700
	cm³/10 s	55-100(40-110)		55-100(40-110)

2 3 Fuel deliveries

Speed control lever	Delivery lever	rev/min	cm³/1000 strokes		Charge-air pressure kp/cm²
End stop	Full	1880-1960	0		
		(1860-1980)			
		1800		(25,0-35,0)	
		1700	42,0-45,0	(41,0-46,0)	
		1200		(48,5-50,5)	
		500	39,0-43,0	(38,0-44,0)	
	Stop	1700	0		
Idle stop	Full	450-500	0		
		(430-520)			
		100	mind. 60,0		
End stop	Start	150-250			

L7

BOSCH Geschäftsbereich KH Kundendienst Kfz-Ausrüstung

Angle to the stop-plate	Pre-setting dimensions
Pump α = 25 ± 4° β = 55 ± 8° γ = 30 − 8° δ = 60 + 8°	Pump Dimension IV = 4,0 mm Dimension V = 24,6 mm

L8

L 8

Test Specifications Fuel Injection Pumps and Governors

40

WPP 001/4 SCA 8,0 d
3. Edition

En

Testoil-ISO 4113

PE 6 P 110 A 720 RS3034 RQV 200-1200 PA275R
PE 6 P 110 A 720 RS3035 EP/RSV 350-1200 P1/310R./.

supersedes 2.79
company Scania
engine DS 8

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 3,30-3,40 (3,25-3,35) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1200	11,6+0,1	12,1 - 12,3	0,4(0,8)			2,5 ± 0,1 ** (max. 2,2-2,9)
225	3,9-4,1	0,9 - 1,3	0,2(0,5)**			

Adjust the fuel delivery from each outlet according to the values in [ ]

** In the case of greater dispersion alter the delivery-valve spring pre-tension accordingly

B. Governor Settings

RQV.. 275R

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel Torque-control travel	
Degree of deflection of control lever 1	rev/min 2	Control rod travel mm 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1200	15,2-17,8	-	-	-	ca.9	100	min.5,5	200	0,4-1,4
							225	3,9-4,1	1000	6,3-6,7
ca.62	10,6	1240-1250					310-	370=2,0	1240	8,2
	4,0	1370-1400								
	1500	0 - 1,0							-	-

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational-speed limitation	Fuel delivery characteristics		Starting fuel delivery Idle switching point		Intermediate rotational speed Torque-control travel	
rev/min 1	cm³/1000 strokes 2	rev/min 3	rev/min 4	cm³/1000 strokes 5	rev/min 6	cm³/1000 strokes 7	rev/min 8	mm
LDA 1200	0,7 bar 121,0 - 123,0 (118,0 - 126,0)	1240-1250*	LDA 600	0,7 bar 119,0 - 123,0 (116,0 - 126,0)	100	200-250		
					225	9,0 - 13,0		
			LDA 500	0 bar 80,0 - 84,0 (77,0 - 87,0)	1300	4,5 mm RW dispersion max. 4		./.

Checking values in brackets

* 1 mm less control rod travel than col 2

BOSCH Geschäftsbereich KH Kundendienst Kfz-Ausrüstung

1.83

L9

The numbers denote the sequence of the tests

B. Governor Settings

EP/RSV.. 310R

(1) Upper rated speed			Intermediate rated speed			(4) Lower rated speed			(3) Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
ca. 71	1200	16,0				ca. 31	350	6,0	-	-
	1250	11,9								
	1300	6,3	without auxiliary spring				100	19 - 21		
							350	5,7-6,3		
(5)	1250	10,8-12,4	with auxiliary spring				400	3,3-4,5		
	1320	2,4- 6,0					520	0 - 1		
	1420	0 - 1								

(1A)

C. Settings for Fuel Injection Pump with Fitted Governor

(2) Full-load stop		(6) Rotational-speed limitation	(3a) Fuel delivery characteristics		Starting fuel delivery Idle		(5a) Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to . . .)						Control rod travel
rev/min	cm^3/–1000 strokes	rev/min	rev/min	cm^3/1000 strokes	rev/min	cm^3/1000 strokes	rev/min	mm
1	2	3	4	5	6	7	8	
1200	115,0–117,0	1240-1250*	600	119,0–123,0	100	200-250		
	(112,0–120,0)		(6c)	(116,0–126,0)	350	9 - 13		
					310	4,0 mm RW		
					Dispersion max. 4			

Checking values in brackets

*1 mm less control rod travel than col. 2

Testoil-ISO 4113

D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing / increasing pressure – in bar gauge pressure (g.p.)

Pump/governor	Setting (g.p.) bar	Measurement (g.p.) bar	Control rod travel- diminution difference mm (1)
PE 6 P..RS 3034 + RQV..PA 275 R	0,40		11,2 - 11,7
		0,70	11,6 - 11,7
		0	10,0 - 10,1
		0,25	10,2 - 10,4

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

L10

L10

Test Specifications Fuel Injection Pumps (1) and Governors

WPP 001/4 MB 14,6 1 1
2. Edition

En

PE8P120A320LS3807 RQV 300-1150PA526-2
1-8-7-2-6-3-5-4 je 45° ± 0,5° (± 0,75°)
Values apply to
engine nozzle-and-holder assemblies 1 688 901 019
and engine fuel-injection tubing 1 680 750 067

superseded 0.82
company: Daimler-Benz
engine: OM 422 LA
276 kW (375PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke 4,0-4,1 (3,95-4,15) mm (from BDC)

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm³/100 strokes	cm³/100 strokes	mm	cm³/100 strokes	mm
1	2	3	4	2	3	6
900	11,6+0,1	18,9-19,1	0,5(0,9)			
300	4,8-5,0	1,2- 2,0	0,8(1,2)			
1150	11,6+0,1	C,Sp. 1 u. 2	0,75			
600	11,6+0,1	C, Sp.4 u. 5	0,75			
500	10,1+0,1					

Adjust the fuel delivery from each outlet according to the values in [ ].

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel (1)	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min (1a) (2a)	Degree of deflection of control lever	rev/min	Control rod travel mm (4)	Degree of deflection of control lever	rev/min	Control rod travel mm (3)	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1150	15,2-17,8	-	-	-	ca.10	100	min.6,0	250	1,0-1,2
							300	4,2-4,4	550	3,4-3,7
ca.65	10,6	1190-1200							850	4,9-5,3
	4,0	1230-1260				320-465			1150	7,6
	1350	0- 1,0				(3a)				

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) (2)		Rotational-speed limitation intermediate speed (2b) (4a)	Fuel delivery characteristics high idle speed (5a) (5b)		Starting fuel delivery idle switching point (6)		Torque-control travel (5)	
rev/min	cm³/1000 strokes	rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
LDA	0,7 bar	1190-1200*	LDA	0,7 bar	100	140,0-160,0	-	-
900	189,0-191,0		600	182,0-186,0				
	(186,0-194,0)			(179,0-189,0)				
LDA	0,7 bar		LDA	0 bar				
1150	185,0-189,0		500	139,0-141,0				
	(182,0-192,0)			(136,0-144,0)				

Checking values in brackets

* 1 mm less control rod travel than col. 2

1.83

L11

BOSCH Geschäftsbereich KH. Kundendienst. Kfz-Ausrüstung.

L11

D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing / increasing pressure – in bar gauge pressure

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel- diminution / difference mm (1)
PE8P..LS3807 + .. PA526-2	0,44	0,70 0 0,34	11,1-11,3 11,6-11,7 10,1-10,2 10,5-10,7

Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 RVI 12,0 a
4. Edition
En

Testoil-ISO 4113

PES 6 P 120 A 320 RS 3070 RQV 250-1100 PA 495
Values apply to
engine nozzle-and-holder assemblies 1 688 901 019
and engine fuel-injection tubing 1 680 750 067

supersedes 8.81
company: RVI
engine: MIDR 063540
223 kW (304 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (3,45-3,65) 3,50-3,60 mm (from BDC) = RW 9,0 - 12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	12,9-13,0	19,4 - 19,7	0,5(0,8)			
250	5,2-5,4	1,5 - 2,3	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in [ ].

B. Governor Settings

Upper rated speed: Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min (1a) (2a) 3	Intermediate rated speed: Degree of deflection of control lever 4	rev/min 5	Control rod travel mm (4) 6	Lower rated speed: Degree of deflection of control lever 7	rev/min 8	Control rod travel mm (3) 9	Sliding sleeve travel (1): rev/min 10	mm 11
max.	1100 1400	15,2-17,8 0 - 1	-	-	-	ca.12	100 250	min.6,8 5,2-5,4	200 500 850 1150	0,3-0,6 3,0-3,2 5,0-5,2 8,4
ca. 66	11,9 4,0	1160-1170 1235-1265				290-400 (3a)				

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) (2): rev/min 1	cm³/1000 strokes 2	Rotational-speed limitation intermediate speed (2b) (4a): rev/min 3	Fuel delivery characteristics (5a): High idle speed (5b): rev/min 4	cm³/1000 strokes 5	Starting fuel delivery idle switching point (6): rev/min 6	cm³/1000 strokes 7	Torque-control travel (5): rev/min 8	Control rod travel mm 9
LDA 1100	0,7 bar 194,0-197,0 (191,0-200,0)	1160-1170	LDA 1100	0 bar 151,0-154,0 (148,0-157,0)	100	130,0-165,0 100-170 (80-190)		

Checking values in brackets

* 1 mm less control rod travel than col. 2

1.83

D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing / increasing pressure – in bar gauge pressure

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel - diminution difference mm (1)
PES 6 P..RS 3070 + RQV..PA 495	0,27		12,2 - 12,3
		0,70	12,9 - 13,0
		0	10,6 - 10,7
		0,22	11,2 - 11,4

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ② and Governors

WPP 001/4 MB 14,6 g 1

4. Edition

En

PE 8 P 120 A 320 LS 3807 RQ 300/1150 PA 511-2

supersedes 10.82

company: Daimler-Benz

engine: OM 422 LA
276 kW (375 PS)

1 - 8 - 7 - 2 - 6 - 3 - 5 - 4 je 45° ±0,5° (±0,75°)

Values apply to
engine nozzle-and-holder assemblies 1 688 901 019
and engine fuel-injection tubing 1 680 750 067

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke (3,95-4,15) mm (from BDC) Zyl. 8

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
900	11,6+0,1	18,9 - 19,1	0,5(0,9)			
300	4,8-5,0	1,2 - 2,0	0,8(1,2)			
1150	11,6+0,1	C. Sp.1u. 2	0,75			
600	11,6+0,1	C. Sp.4u. 5	0,75			
500	10,1+0,1					

Adjust the fuel delivery from each outlet according to the values in [ ].

B. Governor Settings

Checking of slider PRG check ①		Full-load speed regulation Setting point		Test specifications ④		Idle speed regulation Setting point		Test specifications ⑤		Torque control ③	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
600	19,1 -20,8	600	19,9	10,6	1195-1210	300	4,3	100	min.6,0	-	-
				4,0	1250-1280			300	4,2-4,4		
								335-375	=2,0		

Torque-control travel on flyweight assembly dimension a = mm

Speed regulation: At 1195 - 1210 min^{-1}

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever ② Test oil temp. 40°C (104°F)		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min 1	cm³/-1000 strokes 2	rev/min 3	rev/min 4	cm³/-1000 strokes 5	rev/min 6	Control rod travel cm³/1000 strokes / mm 7
LDA	0,7 bar	-	LDA	0,7 bar	100	140,0 - 160,0
900	189,0 - 191,0		600	182,0 - 186,0		
	(186,0 - 194,0)			(179,0 - 189,0)		
LDA	0,7 bar		LDA	0 bar		
1150	185,0-189,0		500	139,0-141,0		
	(182,0-192,0)			(136,0-144,0)		

Checking values in brackets

1.83

D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing / increasing pressure – in bar gauge pressure

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel-diminution difference mm (1)
PE 8 P..LS 3807 + RQ..PA 511-2	0,44		11,1 - 11,3
		0,70	11,6 - 11,7
		0	10,1 - 10,2
		0,34	10,5 - 10,7

Notes.

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Testoil-ISO 4113

PES 6 P 120 A 720 LS 388 RQ 250/1100 PA 452

6 - 2 - 4 - 1 - 5 - 3 je 60°

supersedes 3.80
company: MAN
engine: D 2566 MK
235 kW (320 PS-1)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (2,95-3,15) 3,00-3,10 mm (from BDC) Zyl.6

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
750	13,1-13,2	22,[illegible] - 22,6	0,5(0,9)			
250	6,3-6,5	1,1 - 1,7	0,8(1,2)			
1100/650/500/500		C, Sp. 4-5				

Adjust the fuel delivery from each outlet according to the values in [ ].

B. Governor Settings

Checking of slider PRG check ① Control rod travel		Full-load speed regulation Setting point		Test specifications ④		Idle speed regulation Setting point		Test specifications ⑤		Torque control ③	
rev/min 1	mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
600	19,2-20,8	600	20,0	10,3	1145-1160	250	6,4	100	min.7,9	1100	11,3-11,4
				4,0	1185-1215			250	6,3-6,5	1000	11,8-12,0
1400	0 - 1,0	VH ca.49°						350-390 = 2,0		900	12,6-12,7
										750	13,1-13,2

Torque-control travel on flyweight assembly dimension a = 0,7 mm

Speed regulation: At 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) ②		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min 1	cm³/1000 strokes 2	rev/min 3	rev/min 4	cm³/1000 strokes 5	rev/min 6	Control rod travel cm³/1000 strokes / mm 7
LDA	1,0 bar		LDA	1,0 bar		
750	222,0 - 226,0		650	214,0 - 220,0	100	225,0 - 245,0
	(219,0 - 229,0)			(211,0 - 223,0)		
			LDA	0,335 bar		
			500	134,0 - 140,0		
				(131,0 - 143,0)	100-170	(80-190)
LDA	1,0 bar		LDA	0 bar		
1100	184,0 - 190,0		500	107,0 - 111,0		
	(181,0 - 193,0)			(104,0 - 114,0)		

Checking values in brackets (Sp. 4-5 increase by ± 3,0 cm³)

11.82

L17

L17

D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing / increasing pressure – in bar gauge pressure

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel- diminution difference mm (1)
PES6P..LS388 + RQ..PA 452	0,34	 1,0 0 0,61	 10,9 - 11,0 13,1 - 13,2 9,4 - 9,5 12,5 - 12,9

Notes.

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 SCA 14,0 c 1
4. Edition
En

Testoil-ISO 4113

PE 8 P 110 A 920/4 LS 3020 RQV 250- 1 000 PA 306
1 - 2 - 7 - 3 - 4 - 5 - 6 - 8 je 45° ±0,5° (±0,75°)

supersedes 2.82
company: Scania
engine: DS 14-01
295 kW (401 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 3,3-3,4 (3,25-3,45) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1 000	13,5+0,1	16,3 - 16,5	0,4(0,8)			3,3+0,1 (3,0-3,5)
225	3,9-4,1	0,9 - 1,3	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in ☐

B. Governor Settings

Upper rated speed: Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min ①a ②a 3	Intermediate rated speed: Degree of deflection of control lever 4	rev/min 5	Control rod travel mm ④ 6	Lower rated speed: Degree of deflection of control lever 7	rev/min 8	Control rod travel mm ③ 9	Sliding sleeve travel ① rev/min 10	mm 11
max.	1 000	15,2-17,8	-	-	-	ca. 8	100	min.5,5	200	1,0-1,2
ca.61	12,5	1 040-1 050					225	3,9-4,1	470	3,4-3,8
	4,0	1 145- 1 175							750	5,2-5,5
	1 300	0-1,0						275-335=2,0 mm	1 000	7,7
						③a				

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ② rev/min 1	cm³/1000 strokes 2	Rotational-speed limitation ②b intermediate speed ④a rev/min 3	Fuel delivery characteristics ⑤a high idle speed ⑤b rev/min 4	cm³/1000 strokes 5	Starting fuel delivery ⑥ idle switching point rev/min 6	cm³/1000 strokes 7	Torque-control ⑤ travel rev/min 8	Control rod travel mm 9
LDA 1 000	0,7 bar 163,0-165,0 (160,0-168,0)	1 040-1 050*	LDA 600	0,7 bar 165,0-169,0 (162,0-172,0)	100	190,0-240,0 / 20,0-21,0 mm RW	-	-
			LDA 500	0 bar 127,0-131,0 (124,0-134,0)				

Checking values in brackets

* 1 mm less control rod travel than col. 2

1.83

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D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing / increasing pressure – in bar gauge pressure

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel- diminution difference mm (1)
.PE 8 P..LS 3020 + .. PA 306	0,7	0 0,44 0,32	13,5-13,6 12,0-12,1 13,1-13,2 12,3-12,5

Notes.

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps and Governors ①

WPP 001/4 VOL 7,0 k 1
2. Edition
En

Testoil-ISO 4113

PE 6 P 110 A 320 RS 423 RQV 335-1100 PA 435

supersedes 5.82
company Volvo
engine TD 70 G
138 kW (188 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 3,0 - 3,1 (2,95-3,15) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	10,7+0,1	9,9 - 10,1	0,4(0,8)			2,5 ± 0,1
335	4,5-4,7	0,9 - 1,3	0,3(0,7)			(2,2-2,9)

Adjust the fuel delivery from each outlet according to the values in [ ].

B. Governor Settings

Upper rated speed: Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min ①a ②a 3	Intermediate rated speed: Degree of deflection of control lever 4	rev/min 5	Control rod travel mm ④ 6	Lower rated speed: Degree of deflection of control lever 7	rev/min 8	Control rod travel mm ③ 9	Sliding sleeve travel ① rev/min 10	mm 11
max.	1100	15,2-17,8	-	-	-	ca. 11	100	min. 7,0	300	1,4-1,6
ca. 64	9,7	1140-1150					335	4,5-4,7	500	3,2-3,5
	4,0	1210-1240					450-510 = 2,0		800	5,0-5,2
	1300	0-1,0							1100	7,9
						③a				

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ② rev/min 1	cm³/1000 strokes 2	Rotational-speed limitation ②b intermediate speed ④a rev/min 3	Fuel delivery characteristics ⑤a high idle speed ⑤b rev/min 4	cm³/1000 strokes 5	Starting fuel delivery ⑥ Idle switching point rev/min 6	cm³/1000 strokes 7	Torque-control travel ⑤ rev/min 8	Control rod travel mm 9
LDA	0,75 bar	1140-1150 *	LDA	0 bar	100	150,0-180,0	-	-
700	99,0-101,0 (96,0-104,0)		700	77,0-80,0 (74,0-83,0)	335	11,0-15,0		

Checking values in brackets

* 1 mm less control rod travel than col. 2

1.83

L21

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L21

D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing / increasing pressure – in bar gauge pressure

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel · diminution / difference mm (1)
PE6P..RS 423 + ..PA 435	0,75		10,7 - 10,8
		0	9,5 - 9,6
		0,17	10,4 - 10,5
		0,09	9,8 - 10,0

Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

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